

- ① Button of blocking rail
- ② Pusher bed, back
- ③ Back bed
- ④ Hole for fixing the wool feed
- ⑤ Dial selector
- ⑥ Lock connection
- ⑦ Keys for pattern device
- ⑧ Stitch size regulator
- ⑨ Back lock
- ⑩ N-X lever
- ⑪ Yarn holder
- ⑫ Edge spring
- ⑬ Mast of wool feed
- ⑭ Wool tension
- ⑮ Tension discs
- ⑯ Regulator of tension arm
- ⑰ Tension arm
- ⑱ Trip cam for row counter
- ⑲ Diagram
- ⑳ Row-Counter

- ⑳ Socket for feeding eyelet
- ㉑ Handle
- ㉒ Front lock
- ㉓ Front bed
- ㉔ Pusher bed, front
- ㉕ Racking handle
- ㉖ Striking comb
- ㉗ Bed lowering knob
- ㉘ Rack rail
- ㉙ Back bed
- ㉚ Back lock
- ㉛ Bed lowering knob
- ㉜ Button of blocking rail
- ㉝ Diagram
- ㉞ Dial selector
- ㉟ Edge spring
- ㊱ Front bed
- ㊲ Front lock

- ㊳ Handle
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- ㉑ Striking comb
- ㉒ Stitch size regulator
- ㉓ Tension arm
- ㉔ Tension discs
- ㉕ Trip cam for row counter
- ㉖ Wool tension
- ㉗ Yarn holder

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Instruction book for the hand knitting machine

PASSAP-DUOMATIC

There it is — your beautiful new PASSAP-Duomatic machine with which you will enjoy many hours of successful knitting.

To get well acquainted with your machine you should carefully and step by step follow the instructions — even if you have tried a little PASSAP knitting before at a demonstration or at a friend's home. It is never wise to think "I know everything already".

Chapter 1 Unpacking and first Acquaintance with your machine

Please observe the special packing instructions for your PASSAP Duomatic — and please keep the packing! You may need it again for dispatching the machine by mail or railway. Don't forget: the PASSAP Duomatic is a valuable Swiss precision product and must be handled with care.

Start by unwrapping all parts and putting them on a table. Now check to make sure nothing is missing and at the same time you will begin to know the name of each part:

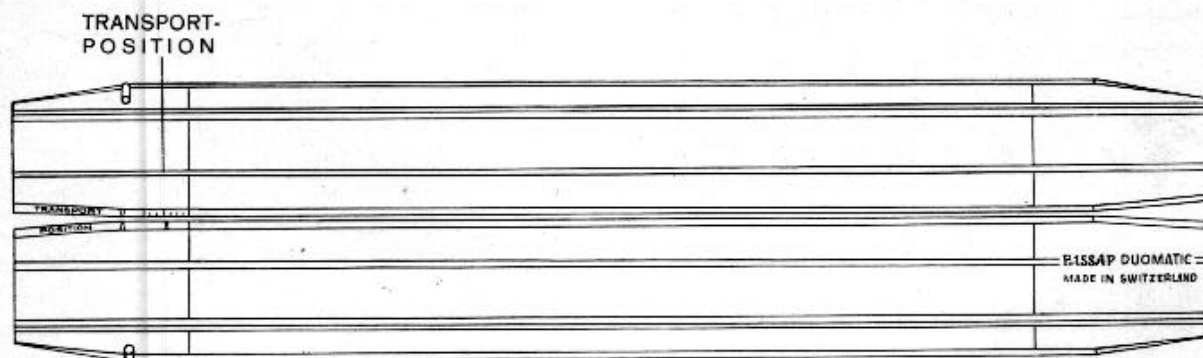


Fig. 1

The machine body, Fig. 1

You will recognize the front bed by the inscription "PASSAP-DUOMATIC Made in Switzerland" which is imprinted on the right side. Here you will also find the serial number of your machine. On the left you will find the racking scale. There is also the indication for the exact position of the beds for transport, i.e., 2 triangles, the points of which have to be in line before you pack the machine. This spot is marked with the word "Transport Position".

The back lock, Fig. 2

- A diagram
- B movable socket for the feeding eyelet
- C opening to receive the bolt of the lock connection
- D two holders for inserting the strippers
- E stitch size regulator
- F N-X lever, to be switched sideways
- G dial selector for obtaining the required stitch pattern
- H three keys for operating the pattern device:
1 left-arrowed key
1 zero-key
1 right-arrowed key
- I hole for fixing the wool feed

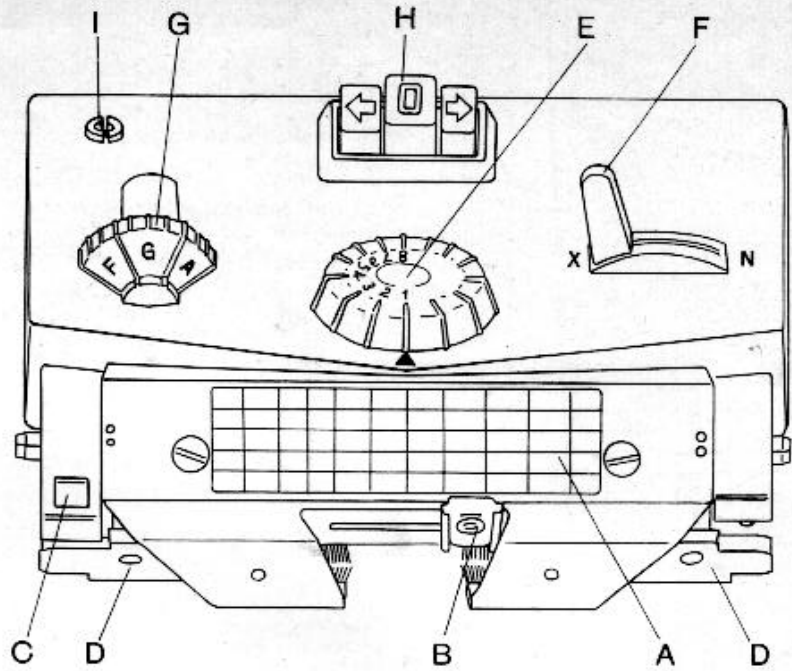


Fig. 2

The front lock, Fig. 3

- K handle
- L built-in row counter
- M lock connection with bolt
- E stitch size regulator as on back lock
- F N-X lever as on back lock
- G dial selector as on back lock
- H three keys as on back lock

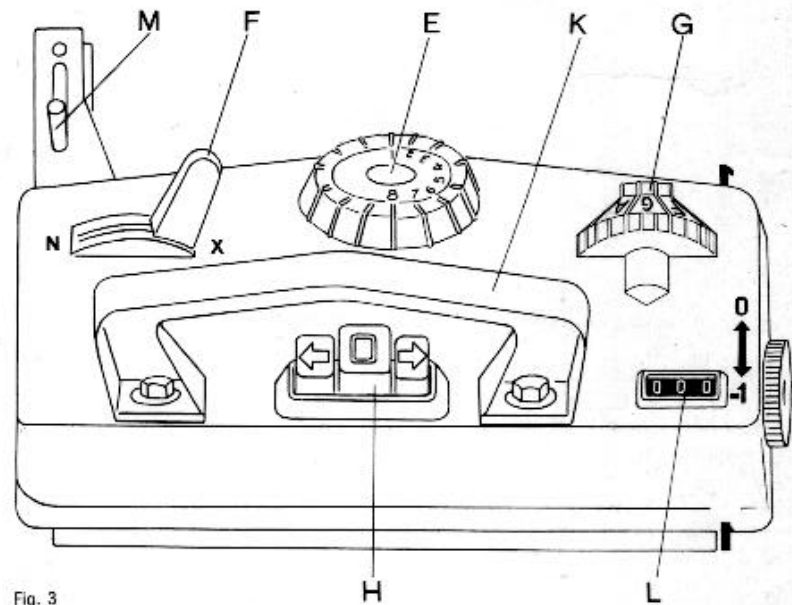


Fig. 3

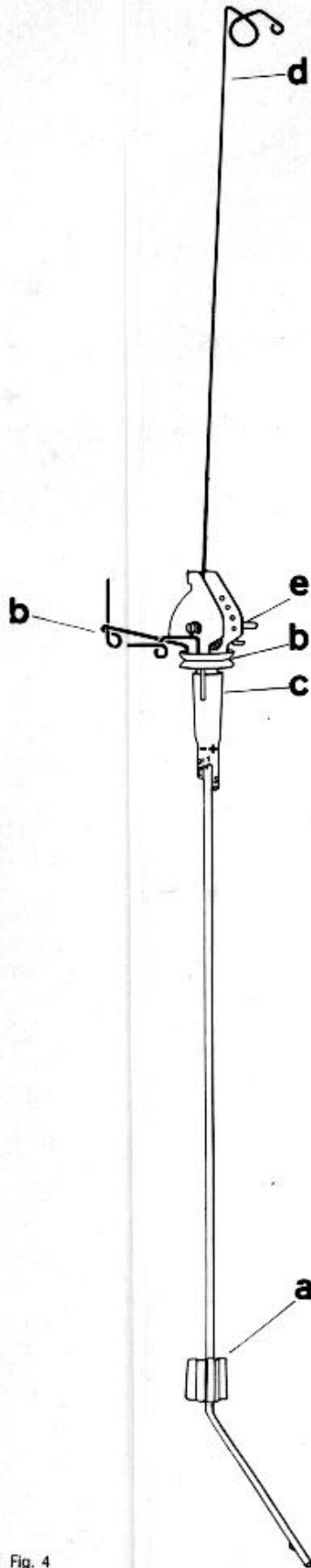


Fig. 4

The wool feed, Fig. 4

- a) mast with bracket for yarn holder
- b) tension discs with 2 guiding eyelets for yarn
- c) wool tension, adjust by turning:
towards "+" tight tension
towards "-" loose tension
- d) tension arm with guiding eyelet
- e) regulator for adjusting the tension arm
"+" yarn is drawn back tightly
"-" yarn is drawn back loosely

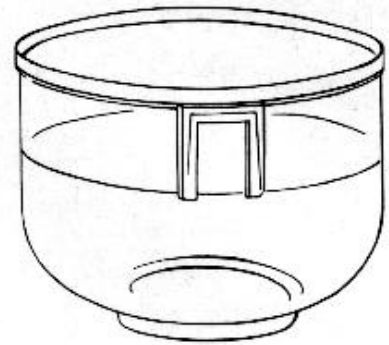


Fig. 5

The yarn holder, Fig. 5

At the side is the locating slot which fits onto the bracket of the mast.

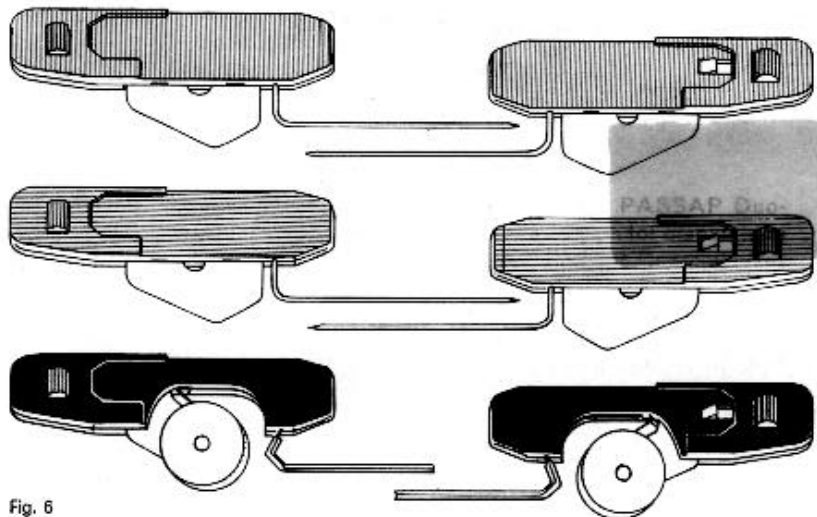


Fig. 6

The strippers, Fig. 6

Two red (9720-13), two blue (9729-13) and two black (9735-20) strippers. They are inserted into the back lock.



Fig. 8

A bottle of PASSAP-Bellodor-Oil, Fig. 8

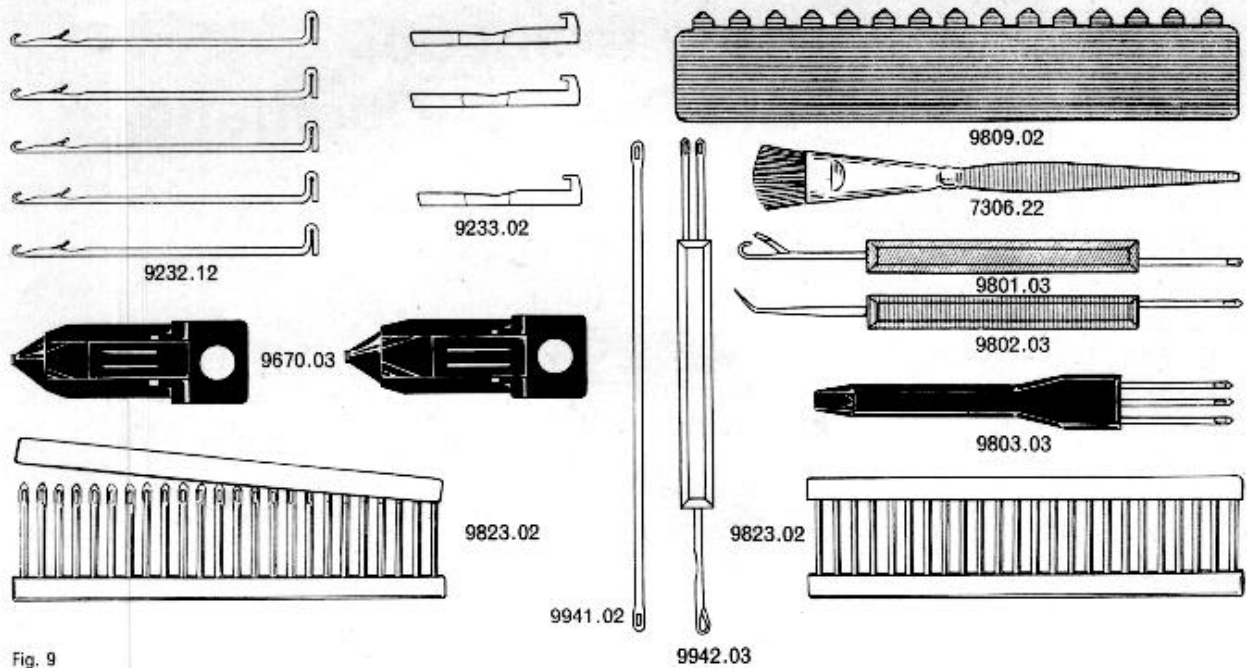


Fig. 9

Various accessories and spare parts, Fig. 9

Please indicate reference number when ordering replacement:

- 7306.22 1 brush
- 9232.12 5 latch needles
- 9233.02 3 pushers
- 9670.03 2 feeding eyelets
- 9801.03 1 green tool (1 latch needle, 1 decker)
- 9802.03 1 red tool (1 angled point, 1 decker)
- 9803.03 1 black tool (1 pusher for needles, triple decker)
- 9809.02 1 pattern ruler
- 9823.02 2 deckercombs
- 9941.02 1 double ended transfer tool (decker needle, 2 eyelets)
- 9942.02 1 yellow tool (1 latch needle, double decker)

The eyelet support, Fig. 12

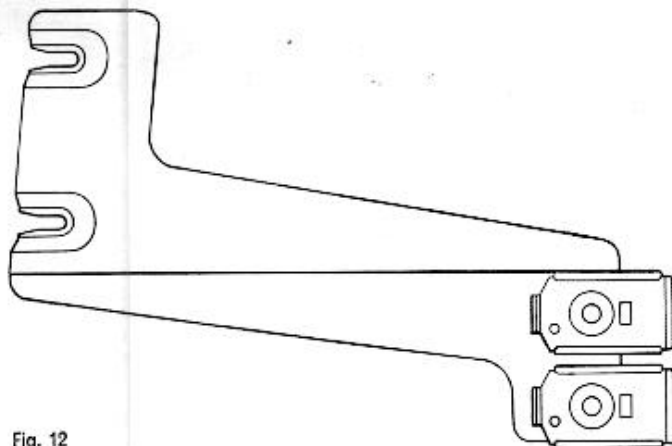


Fig. 12

Special note — Please always give serial number of your machine when ordering parts

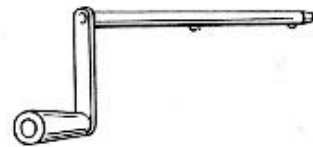


Fig. 10

The racking handle, Fig. 10

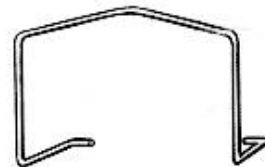


Fig. 11

The trip wire for the row counter, Fig. 11

To be used for PASSAP-DUOMATIC up to number 670000 only. From number 671000 onwards a trip cam is inserted into the upper main rail, which serves the same purpose.

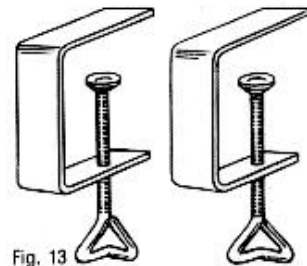


Fig. 13

Two clamps for fixing the back needle bed to the table, Fig. 13 (9811)

Chapter 2

How to set up the Passap–Duomatic

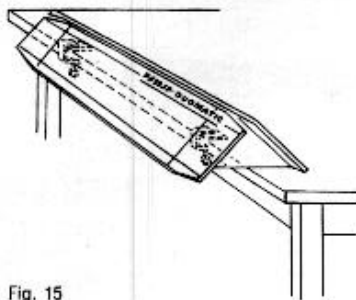


Fig. 15

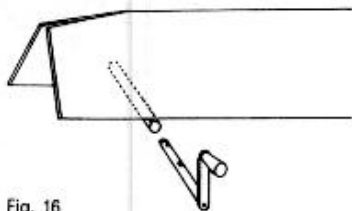


Fig. 16

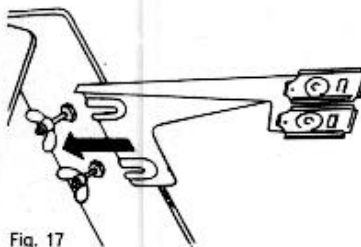


Fig. 17

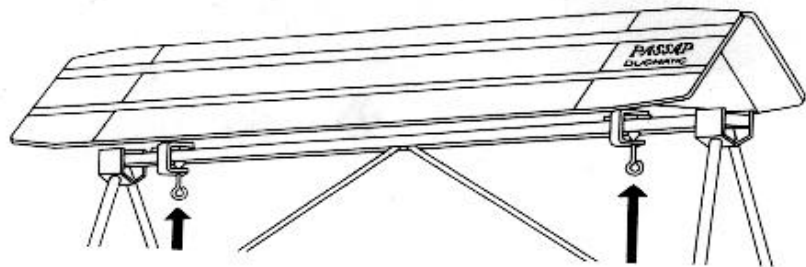


Fig. 14

Put needle beds on stand: imprint PASSAP Duomatic facing you. Place pads of back bed (underneath) on supports on stand and fix with clamps, Fig. 14.

If you have no special Duomatic stand, screw pads of back bed to edge of an ordinary table, Fig. 15.

Insert racking handle into the long tube at left under the front bed. Handle up, turn until it clicks, Fig. 16.

Place eyelet support beneath wing nuts on the right of back bed and tighten nuts, Fig. 17.

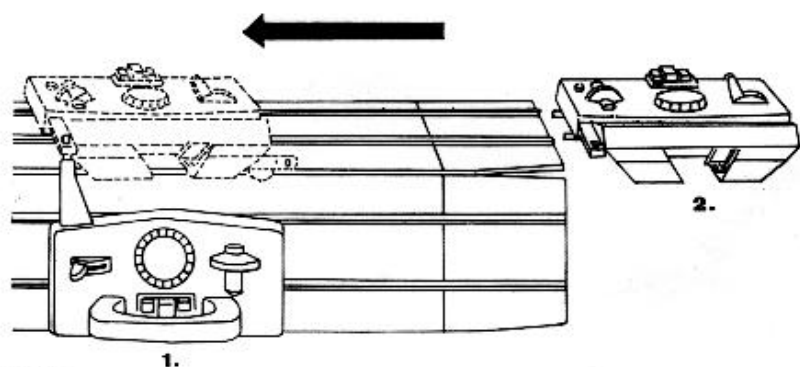


Fig. 18

1. **Slide front lock from the right onto front needle bed** so that the nylon rails of the lock glide in the metal rails of the bed.
2. **Slide back lock from the right onto back needle bed, Fig. 18.**

Close lock connection: push bolt of front lock into square opening of back lock.

Insert red strippers into their holders on back lock : move lock slightly to the left, slide stripper in sideways until retaining spring clicks. Now move lock to the right and slide in second stripper on the right, Fig. 19.

To remove strippers, press in button A, Fig.19.

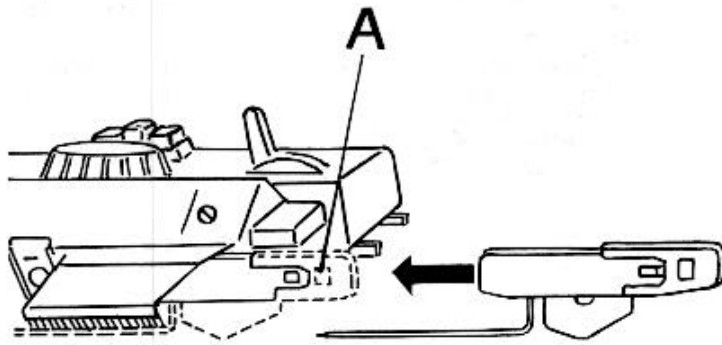


Fig. 19

Insert mast of wool feed into hole on the left of back lock until it clicks.

Fix yarn holder to mast of wool feed, Fig. 20.

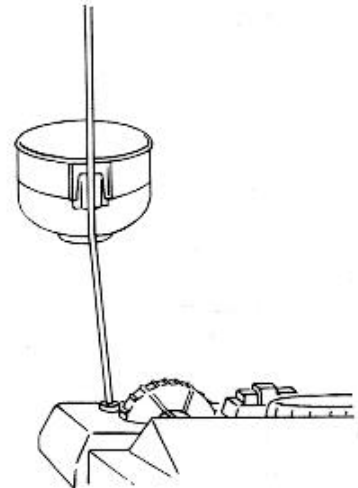


Fig. 20

Insert feeding eyelet into its socket on the lock, Fig. 21.

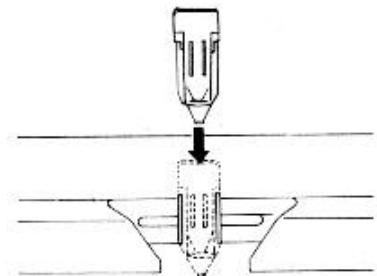


Fig. 21

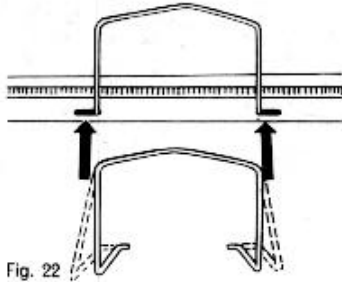


Fig. 22

Fix trip wire to base of front bed: pull ends slightly outwards, insert them into two matching slits provided on front bed, then release, Fig. 22. The trip wire may be fixed at three places.

To remove pull ends outwards.

This trip wire is used for PASSAP-DUOMATIC up to number 670000 only. From machine number 671000 onwards a **trip cam** is inserted into the upper main rail instead. See fig. 42a, page 15.

How to clean and oil your PASSAP-DUOMATIC

Clean and oil the machine only after having removed the knitting. A machine not in use should always be protected against dust.

Cleaning

Every time a garment is finished or daily when the machine is in permanent use proceed as follows:

1. Carefully remove locks and turn them upside down.
2. With a soft dry cloth wipe off all surplus oil, or oil which has become black, from the underside of the locks and the needle beds.
3. With a dry brush remove remaining dust from both needle beds and the underside of the locks.
4. Polish inside rails of needle beds with a cloth. Dust and oil remainings may provoke heavy movement of the locks.

Occasionally, and should the machine appear to be unduly stiff in operation, **additional** cleaning should be carried out as follows:—

a) Means

Our latest tests have shown that the machines can best be cleaned with surgical spirits, which are available in drug-stores and do not harm the machine parts. We recommend to add PASSAP Bellodor oil to the surgical spirits so that the machine parts are simultaneously oiled and will not dry out. Moreover PASSAP Bellodor oil does everything, cleans parts and rust proofs to a certain extent.

Observe mixing proportion: 1 pint of surgical spirits to 1 fluid ounce of PASSAP Bellodor oil.

b) How to proceed:

Clean lock parts and cam box guides with brush and then rub slightly with cloth, moistened with cleaning solution.

Remove needles and pushers from beds and rinse in cleaning solution. Then rub them with cloth, dipped in cleaning solution.

Rub rails with dry cloth and then clean with brush dipped in cleaning solution.

Clean needle channels with moistened brush (place machine so that cleaning solution can run off through striking comb). Then clean with dry brush. Rub machine with dry cloth.

Reinsert needles and pushers.

Special note: Never use benzine or petrol or any similar liquid which might harm the plastic material. Don't rub over the letters on lock and side plates.

Oiling after having cleaned the machine

a) Locks

On both locks drop and spread 3 to 4 drops on and around the guiding rails. Oil lock parts where the needles slide, with brush or oily cloth.

b) Guide Rails

Put 2 to 3 drops of PASSAP Bellodor oil on middle part of each guide rail.

c) Needle and pusher Feet

With an oily cloth lightly rub needle and pusher feet.

Special note: Always use PASSAP Bellodor oil. Other qualities of oil may contain ingredients which could harm the machine.

Chapter 3

Some basic points to give you a better understanding of your machine

The Needle Bed

Basic position of beds — racking of back bed

The needle beds of all machines leaving the factory are in "Transport Position", i.e. they are placed exactly opposite each other so that every needle of one bed is facing a needle or channel of the other bed. Racking handle up, Fig. 23.

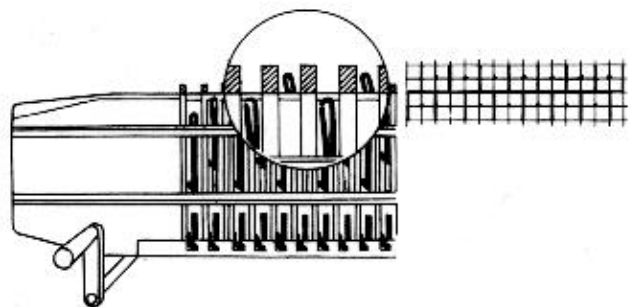


Fig. 23

"Needle facing channel" — Handle up — Transport Position, Fig. 23

In this position only every second needle can work on each bed (1:1 division). Apart from transporting packing and storing away, this position is only used for special patterns and knitting with thick wools.

If the handle is turned down half a circuit the **back** needle bed moves sideways half a needle division into the "Normal Position", i.e. each needle of one bed is facing a tooth of the other bed. Handle down, Fig. 24.

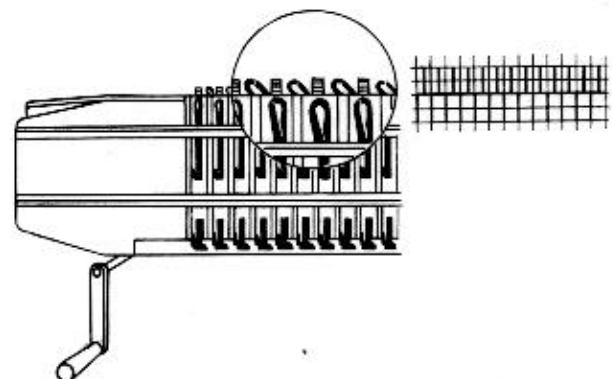


Fig. 24

'Needle facing tooth' — Handle down — Normal Position, Fig. 24

In this position all needles can work on both beds.

For racking patterns you always have to make a **full circuit** with the handle so that the back bed is racked 1 complete needle division.

Turn handle to the left: back bed is racked to the left, Fig. 25

Turn handle to the right: back bed is racked to the right, Fig. 26

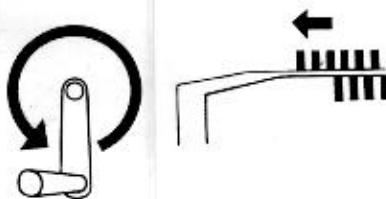


Fig. 25

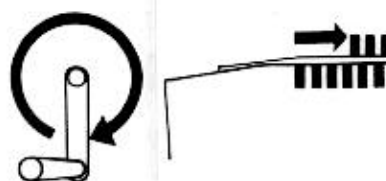


Fig. 26

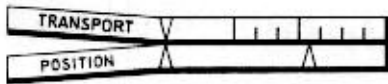


Fig. 27

On the PASSAP Duomatic you can rack the back bed 6 times to the right and six times to the left, Fig. 27, in Normal Position as well as in Transport Position.

Positions and functions of latch needles and pushers

Each bed consists of a "needlebed" and a (smaller) "pusher bed". There are 179 latch needles on each needle bed, and these do the knitting. There are 179 pushers on each pusher bed, i.e. one pusher for each latch needle. Their function is to make some needles work and to put others out of action when patterns are knitted.

The latch needle, Fig. 28

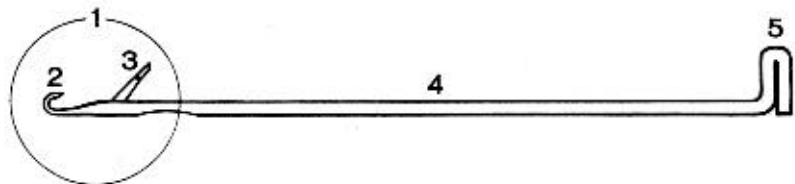


Fig. 28

1 = head of needle, 2 = hook, 3 = movable latch, 4 = needle shaft, 5 = needle foot.

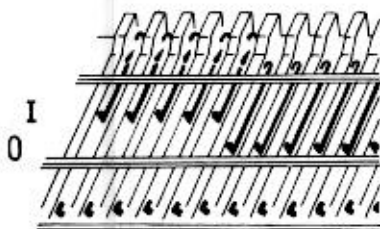


Fig. 29

The latch needle has two basic positions, Fig. 29

0 = Neutral Position, needle foot at lower rail, needle completely out of action.

I = Working Position, needle foot in the lower third of needle bed, head of needle between teeth of striking comb. Stitch in hook of needle head.

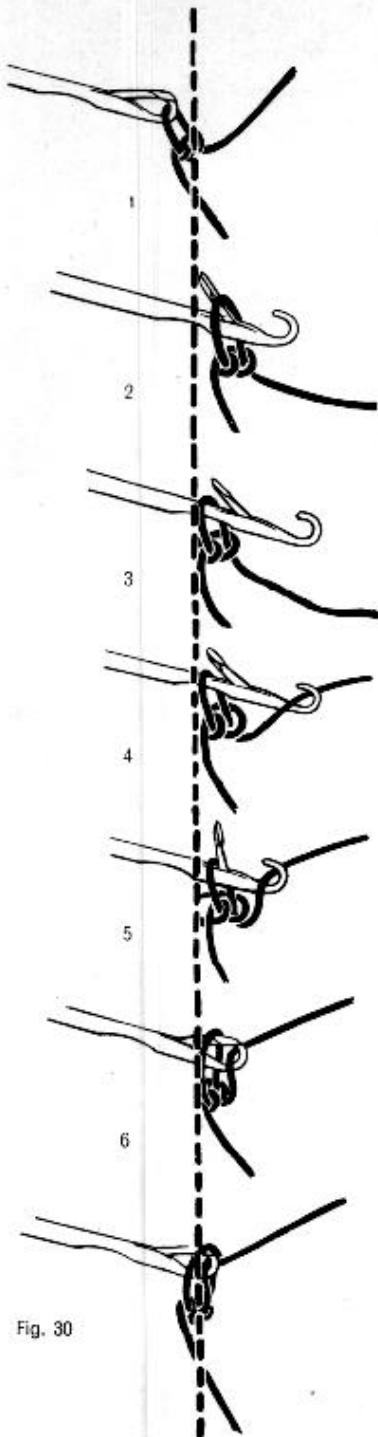


Fig. 30

When you move the lock across the needles, the latch needle forms the stitch according to Fig. 30 as follows:

1. Needle in Working Position, stitch in closed needle head.
2. Needle advances, the stitch opens the latch.
3. Needle advances further, the stitch slides behind the opened latch.
4. Automatically the feeding eyelet feeds the yarn into the open needle head.
5. Needle moves backwards, the old stitch closes the latch.
6. Needle moves further backwards, the yarn for the new stitch is caught in the hook, the old stitch slides over the closed latch.
7. The needle returns into Working Position, the caught yarn is drawn through the old stitch, which slides off over the closed needle head.

The new stitch has been formed with the caught yarn.

The pusher, Fig. 31

1 = shaft, 2 = foot



Fig. 31

The pusher is only used for special PASSAP Duomatic stitch patterns and for making shaping easier.

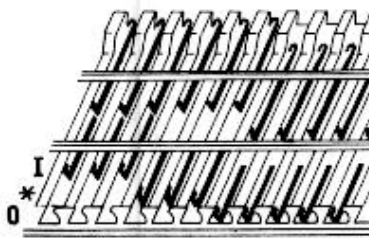


Fig. 32

There are three basic pusher positions, Fig. 32

0 = Neutral Position. The foot of the pusher is within the blocking rail. Pusher completely out of action (position of pushers when machine is leaving the factory), Fig. 32. For taking pushers out of the blocking rail see page 12, Fig. 33.

* = Rest Position, the foot of the pusher is out of the blocking rail and is resting on it. When the pusher is in Rest Position, the corresponding latch needle does **not** knit when patterning is done, but may receive loops. Fig. 32.

I = Working Position, the foot of the pusher is out of the blocking rail in the lower third of the pusher bed. Only when the pusher is in Working Position does the corresponding latch needle knit normally, Fig. 32.

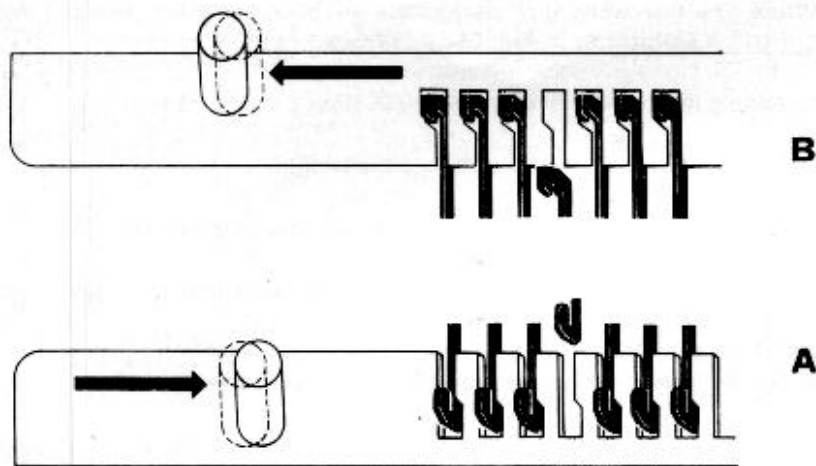


Fig. 33

Special note concerning pushers

(See lock-setting GX = free move, page 18)

Before free moving the lock, carefully note the arrangement of all pushers in use, and also the number of rows shown on the row counter.

After making the free move, unravel part row (if knitted), return lock to side **from** which it was being moved prior to the interruption of the knitting.

Reset pushers in correct arrangement; reinsert strippers and feeding eyelet.

Reset locks and deduct 2 rows from row counter reading noted before free move, using the trip.

Commence knitting.

In order to put pushers into Working Position, the rail must be opened and the pusher must be moved out of the rail.

Front bed: push button of blocking rail to the **right** and hold it, then advance pusher and release button, Fig. 33 below.

Back bed: push button of blocking rail to the **left** and hold it, then advance pusher and release button, Fig. 33 above.

Always be careful that no pusher foot is caught by a tooth of the blocking rail. The rail must spring back to its initial position when you release the button, so that each tooth of the rail closes the corresponding pusher channel. When a latch needle is in Neutral Position, its corresponding pusher must also be in Neutral Position, i.e. within the blocking rail, Fig. 34.

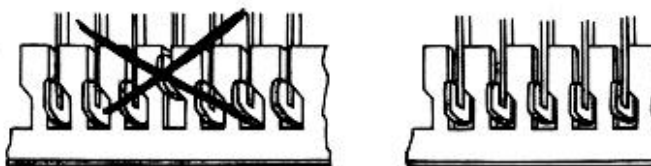


Fig. 34

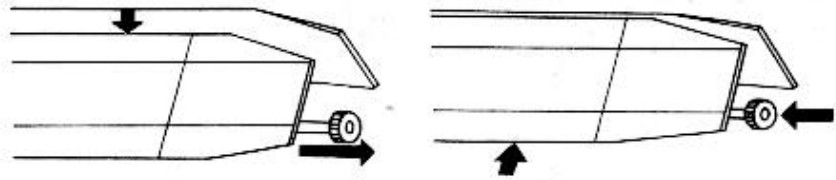


Fig. 35

How to lower the front bed, Fig. 35

To inspect the knitting and to make certain hand operations easier, the front needle bed can be lowered. To do this, pull out the knob on the right of the machine to its fullest extent and lightly support front bed with left hand. The bed is lowered so that there is a space of about $\frac{3}{4}$ " between the beds, Fig. 35 at left.

To raise the needle bed again, press the knob in until it clicks, and at the same time, lift the bed slightly with the left hand. The bed returns to its normal position, Fig. 35 at right.

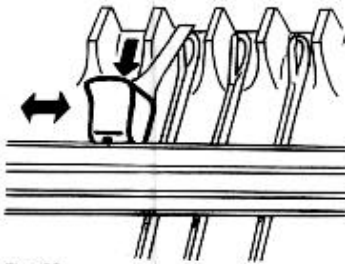


Fig. 36

Edge Springs, Fig. 36

On each needle bed there are two edge springs. They are set over the outer latch needles in Working Position (edge needles) and ensure correct knitting of the edge stitches.

Press red knob away from striking comb to free the springs. Slide edge spring over edge needle and release knob. Now the spring covers the edge needle, the latch of which should **always** be closed.

Needle Scale, Fig. 37

On the lower guiding rail of each bed there is a needle scale. Starting from the centre, towards the right and left each side is numbered from 1 to 90. The PASSAP Duomatic has **no** zero-needle, so that errors are omitted. 10 to 1 and 1 to 10 are really 20 needles and not 21 as on most other knitting machines which number one needle with zero.

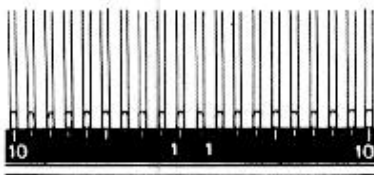


Fig. 37

The Lock

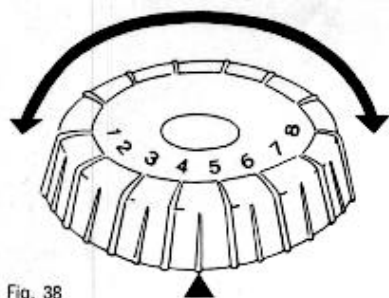


Fig. 38

Stitch size regulator, Fig. 38

Turn sideways for quarter, half and full numbers

High numbers: for large stitches (corresponding to thicker hand knitting needles).

Low numbers: for small stitches (corresponding to thinner hand knitting needles).

The numbers do **not** correspond with the numbers of hand knitting needles. Due to the fine graduation you get more, i.e. 29 different stitch sizes.

Normally stitch size regulators of back and front lock must be set to the same number.

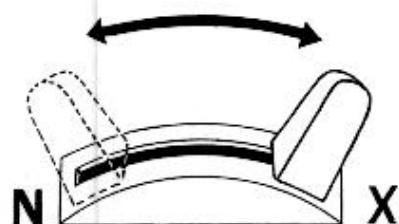


Fig. 39

N-X lever, Fig. 39

Switch sideways

N = Normal knitting regardless of the setting of the dial selector.

X = Patterning in connection with a letter on the dial selector.

Always switch the N-X lever **fully** to the right or to the left.

Dial selector for adjusting the required stitch pattern, Fig. 40

The dial selector can only be adjusted if the N-X lever is set to N. It is locked and ready for patterning when the N-X lever is set to X. There are seven possible settings for the dial selector according to the diagram on the back lock.

Example: for tubular knitting read "tubular - CX" on diagram then proceed as follows:

Set N-X lever to N.

Turn dial selector to C.

Special note: the ridges of lock and dial selector must be in line.

Set N-X lever to X.

Now the lock is set for CX = tubular.

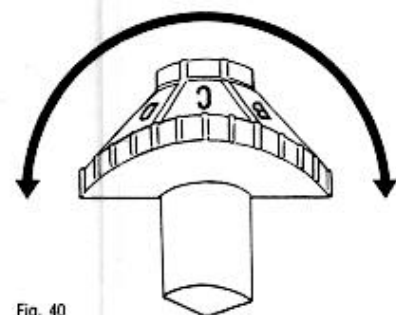


Fig. 40

The use of the letters according to the diagram is explained in detail on page 18.

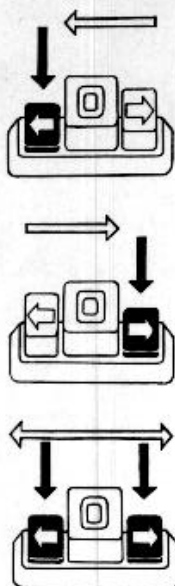


Fig. 41

Three keys for operating the automatic patterning device, Fig. 41

To operate the patterning device, press down arrowed key(s), to release it, press down zero key.

The automatic patterning device changes the pushers automatically from Rest Position to Working Position and vice versa giving "pattern changes"

Press down arrowed key:

when the lock is on the right:

press down left arrowed key when your pattern requires a change of the pusher position **in the next row**, Fig. 41 top

when the lock is on the left:

press down right arrowed key when your pattern requires a change of the pusher position **in the next row**, Fig. 41 centre

When one key is pressed down, the pushers change their position automatically every second row.

When both keys are pressed down, the pushers change their position automatically every row, Fig. 41 bottom.

Special note: press down the keys until they click.

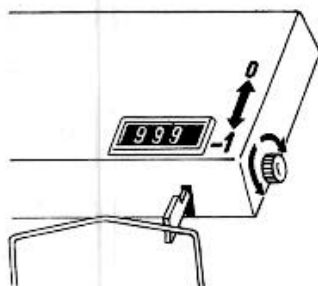


Fig. 42

The row counter on the front lock, Fig. 42 and 42a.

Up to PASSAP-DUOMATIC number 670000 a **trip wire** for operating the trigger of the row counter has to be fixed to base of front bed, Fig. 42.

The trigger of the row counter is placed at lower edge of lock hood. It serves to add numbers. Fig. 42.

From machine number 671 000 onwards a **trip cam** for operating the trigger is inserted in the upper main rail. The cam is movable sideways. Fig. 42a.

The trigger of the row counter is placed at upper edge of lock hood. It serves to add numbers. Fig. 42a.

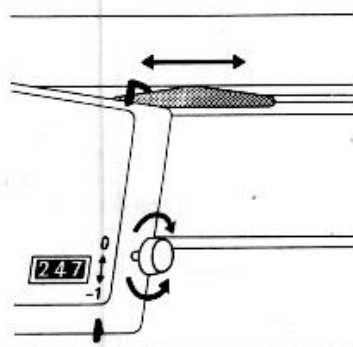


Fig. 42a

The built-in row counter works with a three-way action:

To add numbers: push metal trigger. This is done automatically when the lock is moved from one side to the other of the machine, because then the trigger is operated by the trip wire.

To deduct numbers: turn red wheel downwards, number by number, in direction «-1».

To set to 000: turn red wheel upwards in direction «0».

Strippers (how to choose the right stripper) see also page 4, Fig. 6.

The PASSAP Duomatic is supplied with three different pairs of strippers:

red: for double-bed knitting with fine wools up to 3 ply stitch size 1 to 3.

blue: for double-bed knitting with heavy and thick wools, from StS 5 1/2 - 8.

black: for tubular knitting and single-bed knitting with any wool and any stitch size. In addition for all patterns when 2 or more needles are working side by side on the same bed.

Chapter 4

What you should know about knitting before knitting

Explanation of the basic patterns

Knitting on two beds

K/K = Knit/Knit

K1:P1 rib with **all** needles on both beds.

Racking handle down, "needle facing tooth", Fig. 43.

Both front and back of knitting show knit stitches, thus the term Knit/Knit = K/K.



Fig. 43

1:1 Only every alternate needle is in working position on each bed, racking handle up, "needle facing channel", Fig. 44.

Both front and back of knitting distinctly show ribbing, just as with hand knitting K1:P1 rib.



Fig. 44

2:2 On each bed every third needle is in Neutral Position, racking handle down, "needle facing tooth", Fig. 45.

Front and back of knitting show K2:P2 rib just as with hand knitting.



Fig. 45

Double-sided Fisherman's Rib. Possible in K/K as well as in 1:1.

Front and back of knitting show Fisherman's Rib just as with hand knitting.

Single Sided Fisherman's Rib.

Possible in K/K as well as in 1:1.

Only one side of the knitting shows the Fisherman's Rib, **the other side shows pearls**. If the Fisherman's Rib is done with the **front** lock, the pearls appear on the back of the knitting, i.e. on that side of the knitting which is facing the back bed. If it is done with the **back** lock, the pearls appear on the front of the knitting, i.e. on that side of the knitting which is facing the front bed.

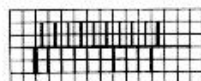


Fig. 46



Fig. 47

The Needle Rule

To obtain a perfect edge you should arrange your needles as follows:

front left = first needle

back right = last needle

This rule must always be followed.

Knitting on one bed

Stocking stitch or jersey stitch

Well-known from hand knitting, one side showing knit stitches only and the other side purl stitches. Stocking stitch is done on the **front bed**, the knit stitches appear on the front, i.e. the side facing the front bed.

Tubular: Stocking stitch in the form of a tube, because alternately one row is knitted on the front bed and the other on the back bed.

Half Tubular: Stocking stitch in the form of a tube, open on one side, because alternately 2 rows are knitted on the front and 2 rows on the back bed.

Knitting on one or both beds

Loop patterns: Loops are unknitted stitches. They are formed on certain needles which do not complete the action of making a stitch, and the unknitted yarn is automatically placed into the hook of the needle head over the original stitch.

As soon as the needles are operating fully again, the loops are knitted off together with the original stitch.

Fairisle — multicoloured patterns

Knitting on one bed. Stocking stitch. The stitches of one row are knitted in different colours for certain designs. Only the needles for one specific colour are working, whilst the others are resting. The yarn is stretched across the head of each resting needle = threads are not woven in on the back of the knitting.

Knitting on both beds. K/K knitting. On the front bed, the needles work in the same manner as stocking stitch fairisle, i.e. with different colours within one row. On the back bed, the needles work alternately on each row so that the threads are woven in.

How to use the Diagram on the lock and the Dial Selector

N = N-X lever to N

The dial selector is out of action regardless of its setting. For normal knitting on both beds and for stocking stitch on one bed.

The dial selector is only used for patterns. It is always adjusted as follows: N-X lever to N, set dial selector to required letter, N-X lever to X.

Example: Lever to N, dial selector to A, lever to X = AX.

AX = for loop patterns

With pushers: The needles with their pushers in Rest Position will always form loops. They will knit normally again by having their pushers returned to Working Position. This is done by pressing the respective arrowed-key, before knitting the next row. See also page 15, Fig. 41.

Without pushers: With this setting only loops will be formed, which can be knitted off again by setting the lever to N.

Needless to say, a latch needle can only hold a limited number of loops.

BX = Fairisle and raised patterns

With pushers only.

Knitting on one bed:

Fairisle patterns with threads that are not woven in on the back of the knitting.

Knitting on both beds:

Fairisle pattern with threads woven in, and for raised patterns.

For shaping, graduations, etc.

Needles with their pushers in Working Position knit normally.

Needles with their pushers in Rest Position do not move at all.

They will knit again by having their pushers returned to Working Position.

BX cannot be used without pushers.

CX = tubular

Without pushers. Lock set to CX only knits in one direction:

back: from left to right

front: from right to left

For tubular both locks must always be set to CX.

DX = tubular with loops

With pushers only. The same as for AX — but it can only be used for pushers in 1 Working Position — 1 Rest Position and on tubular knitting only. Always make sure that the pusher setting follows round in a clockwise direction, e.g. front end pusher at right in Working Position — back end pusher at right in Rest Position.

EX = Fisherman's Rib

Without pushers. The needles work as follows:

1 row loops for Fisherman's Rib

1 row normal knitting

When the lock is moved from right to left the loops are placed in the needle heads on back bed. The needles on the front bed knit normally.

When moving the lock from left to right the loops are placed in the needle heads on front bed. The needles on the back bed knit normally.

Back EX, front N = Pearls appear on the front of knitting

Back N, front EX = Pearls appear on the back of knitting

Back EX, front EX = Full Fisherman's Rib on both sides of knitting.

FX = Patterned Fisherman's Rib

With pushers only.

Knitting on both beds: Arrange the pushers as required. When the pushers are in Working Position, the corresponding needles will knit normally, even if the other needles form loops. This way you can knit vertically striped or check patterns with pearls and normal stitches.

Knitting on one bed: With automatic pattern device with pushers 1 Working-Position — Rest-Position. Without automatic pattern device arrange for any required division but only leaving single pushers out of action, within the pusher rail (never two adjacent pushers).

GX = Free Move

Complete free move, everything except pushers is out of action. The lock can be set to GX at any time, even in the middle of a row.

Remove strippers and feeding eyelet and lock will move freely across knitting without dropping stitches.

Special note concerning pushers see page 12.

Chapter 5 How to knit — first part

For your first knitting practice we advise you to follow these instructions carefully.

Choose a light 3 ply wool and by means of a wool-winder, e.g. a PASSAP wool-winder, wind it to a nice soft ball, pulling the loose yarn end from the centre. See also page 26, Fig. 73.

How to thread the yarn

All needles in Neutral Position.

Place the ball of wool in the yarn holder A. Behind the mast pick up loose end of wool with the right hand, take lower part of wool in the left hand and thread as follows:

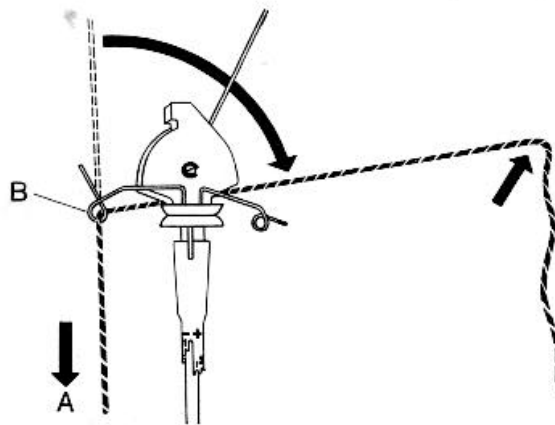


Fig. 48

Guide the yarn through back eyelet B (from below and the right backwards), Fig. 48

between the tension discs C (from back to front) through eyelet D (from above), Fig. 49. The yarn must run between the mast and the little peg, Fig. 49.

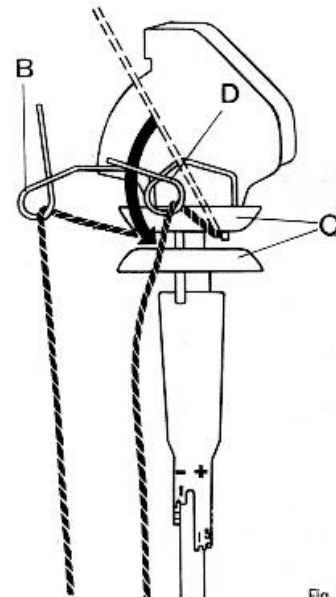


Fig. 49

Abbreviations		Zig-zag = casting on row, the forming of the wool between the needles of both beds
StS	=	Stitch size
RC	=	Row Counter
Lock $\frac{N}{N}$	=	set NX lever on back and on front to N
Lock $\frac{EX}{N}$	=	set NX lever on back to EX and on front to N
st.	=	stitch
Nd.	=	needle
L	=	left
R	=	right
For other abbreviations see page 42.		

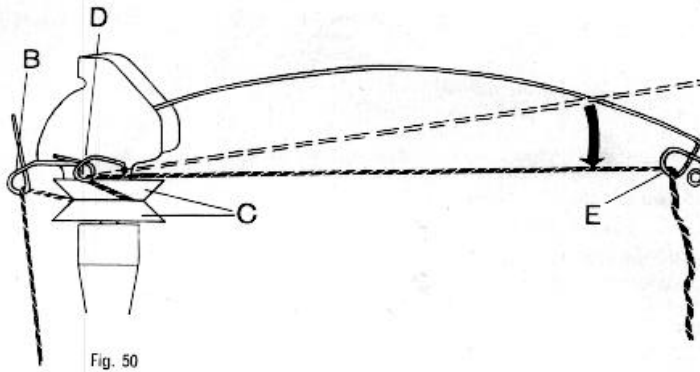


Fig. 50

through eyelet on the tension arm (from the left and from above), Fig. 50, then pull out a length of appr. 2 yards of yarn and let it hang down.

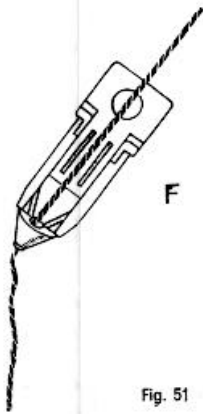


Fig. 51

Remove feeding eyelet F from its socket on the lock, thread yarn through it, Fig. 51, leaving a long end hanging loose under the feeding eyelet.

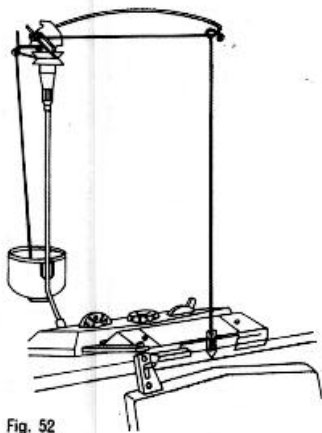


Fig. 52

Replace feeding eyelet into socket. Move lock to the left. Pull yarn end to the right and let it drop down between the needle beds. Return lock to the right, Fig. 52.

How to adjust the wool tension

The tension regulator G with its tension discs and the lever of the tension arm H simultaneously regulate the wool tension, Fig. 53

Adjustment of tension regulator from 1 to 5 with half numbers.

Adjustment of lever of tension arm from 1 to 10.

The adjustment depends on the thickness and quality of the wool. For a thick wool you adjust the tension regulator to a low number and the tension arm to a high number. For a thin wool you adjust the tension regulator to a high number and the tension arm to a low number.

Slightly lift tension regulator G, turn towards "+" and release
i.e. at 4½: strong tension, the yarn runs tightly.

Slightly lift tension regulator G, turn towards "-" and release
i.e. at 1½: weaker tension, the yarn runs loosely.

Lift and turn lever of tension arm H backwards towards "+" and release
i.e. at 6: strong lift of yarn.

Lift and turn lever of tension arm H forwards towards "-" and release
i.e. at 1: weak lift of yarn.

Hold yarn underneath the beds with one hand. At the same time and with the other hand pull yarn down between the back eyelet B and yarn holder until the tension arm is in a horizontal position, Fig. 54

If the tension arm moves too quickly (jerks upwards) turn tension regulator towards "+" (don't release yarn) and adjust lever of tension arm towards "-".

If the tension arm does not move at all, turn tension regulator towards "-" and lever of tension arm towards "+".

Correct adjustment: tension arm is in a horizontal position and moves slowly upwards.

Release yarn only after having correctly adjusted the tension.

Special note:

If your tension arm is too loose you will get loops at the beginning of rows when knitting. If your tension arm is too tight, you will feel the wool dragging while you knit. If you alter the tension arm H you have to alter the tension regulator G accordingly.

We suggest that you keep a little booklet in which to write the numbers once you have found the correct adjustment for a particular wool. This will help for future reference.

Casting on and Knitting K/K = Knit/Knit

(K1 : P1 rib over every needle)

Preparations

Handle down, red strippers, lock with threaded feeding eyelet on the right. All pushers within the pusher rail.

Front bed: 60 needles in Working Position — on needle scale select 30th to first and first to 30th needle.

Back bed: Also 60 needles in Working Position according to needle rule:
First needle on the left of front bed
Last needle on the right of back bed
Now there is a total of 120 needles in Working Position on both beds.



Fig. 53

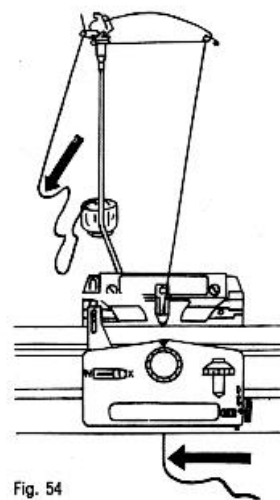


Fig. 54

Fix edge springs (latches of needles must be closed)

Lock: $\frac{N}{N}$, StS3, RC 000, handle down, Fig. 55

i.e. at front and back lock set N-X lever to N, stitch size to 3, row counter to 000. Press 0-keys in order to be sure that all keys are out of action.

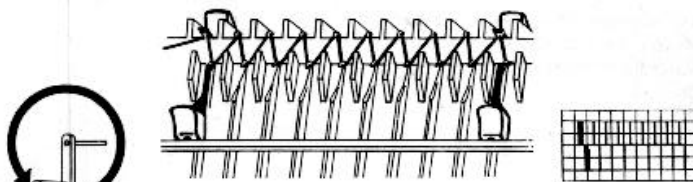


Fig. 56

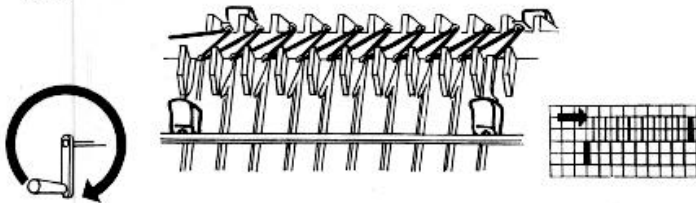


Fig. 57

Double sided Fisherman's Rib: Lock at right: $\frac{EX}{EX}$

i.e. back and front: set lever to N, dial selector to E, lever to X = EX. Knit 30 rows, RC 60

Normal knitting: Lock at right: $\frac{N}{N}$

i.e. back and front: reset levers to N. Knit 10 rows, RC 70

Pearls on the front of knitting: Lock at right: $\frac{EX}{N}$

i.e. at back just set lever to X, the dial selector already being set to E. Knit 20 rows, RC 90

Normal knitting: lock at right: $\frac{N}{N}$

i.e. at back reset lever to N. Knit 10 rows, RC 100

Pearls on the back of knitting: Lock at right: $\frac{N}{EX}$

i.e. at front just set lever to X, the dial selector already being set to E. Knit 20 rows, RC 120

Normal knitting: Lock at right: $\frac{N}{N}$

i.e. at front reset lever to N. Knit 10 rows, RC 130

Pearls on the front of knitting: Lock at right: $\frac{EX}{N}$

Knit 20 rows, RC 150

Knit 10 rows, RC 160

Normal knitting: lock at right: $\frac{N}{N}$

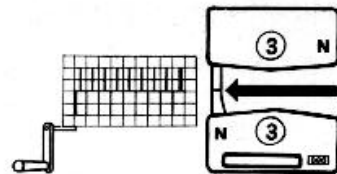


Fig. 55

Quick casting on with racking and normal knitting

Make one full circuit to the left with the racking handle, so that the back bed is racked over 1 needle to the left. Hold end of yarn underneath the bed with left hand and pull down until the tension arm is in a horizontal position. **Do not** release yarn.

1st row: With right hand move lock to the left so that a zig-zag is formed i.e. the yarn is extended in a zig-zag between the needles of the two beds, Fig. 56.

Release yarn and with the left hand make one full circuit of handle to the right in order to rack the back bed to the right, Fig. 57. Hold yarn again.

2nd to 4th row: knit 3 rows, i.e. move lock to the right (making sure the lock has cleared the working needles), to the left and back to the right again. Now release yarn and move lock evenly to and fro in this manner until the row counter reads 30: RC 30.

Increasing and Decreasing, Transfer of stitches and Casting off on double-bed work

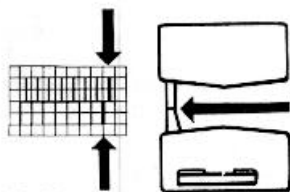


Fig. 59

On both edges decrease 8 stitches

Always on the side where the lock is, i.e. at first at right, transfer the 4 edge stitches from the front bed to the corresponding needles of the back bed, either with double ended transfer tool, Fig. 60, or with single decker needle, Fig. 61. Leave empty needles on front bed in Working Position, knit 1 row.

Fig. 60: Transferring stitches with the double ended transfer tool

Place one end of tool into the hook of the latch needle, pull up to its fullest extent and push down again, so that the stitch slips onto the tool.

Now place other end of tool into the hook of the needle of the opposite bed, pull slightly up, tilt tool, until the stitch slips into the needle head (not behind the latch!) together with the stitch which is already there.

Fig. 61: Transferring stitches with the single decker needle

Place decker into latch needle, pull forwards and backwards, so that the stitch slips onto the decker. Now hold decker with stitch in front of opposite needle and push the latter across the stitch, until the stitch hangs in the needle head (not behind the latch!)

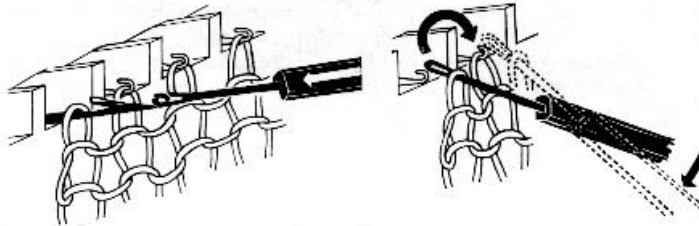


Fig. 58

On both edges decrease 2 stitches 4 times at beginning of each alternate row. Use single decker of the red or green tool. Lock at right. At first at right, on front and back bed, transfer the edge stitch to the left onto next needle of the same bed. Put empty needles into Neutral Position, close latches, reset edge springs. Repeat at left, Fig. 58. Knit 2 rows and repeat three times. RC 168.

On both edges increase 2 stitches 4 times at beginning of each alternate row

Only on the side where the lock is; i.e. at first at right, on front and back bed put one new needle in each case in Working Position, close latch, reset edge springs, Fig. 59, knit 1 row. Repeat at left, knit 1 row. Repeat three times. RC 176

Knit 10 normal rows, RC 186.

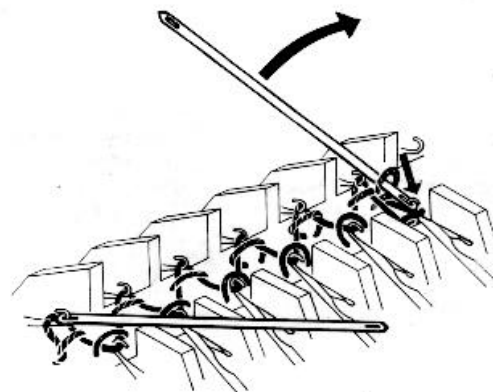


Fig. 60

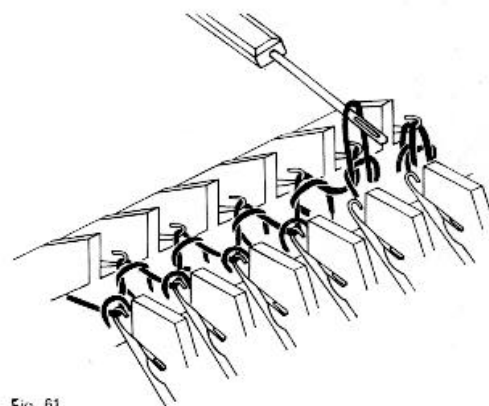


Fig. 61

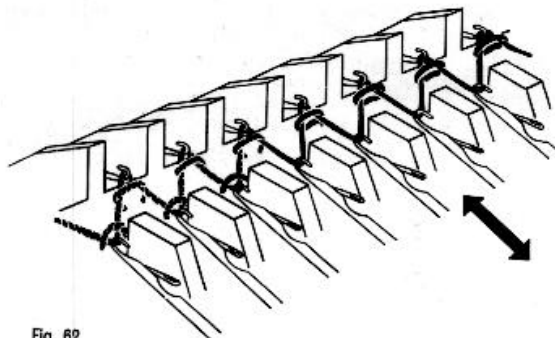


Fig. 62

On the 4 front needles, loops have been formed. Drop these loops by hand, in this manner, (Fig. 62), advance the 4 needles until the loops are behind the latches, then return needles to Neutral Position. In doing so the loops are dropped and remain as large stitches on the back bed.

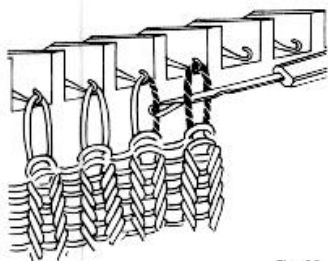


Fig. 63

Cast off loops from the right with the latch end of the green tool. See Fig. 63 to 65. Place the 4th crocheted stitch on the new edge needle, Fig. 66.

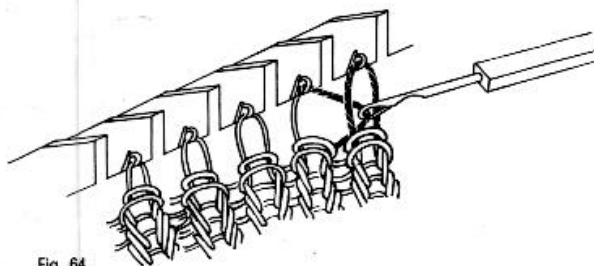


Fig. 64

Then also advance and return to Neutral Position, the 4 edge needles of back bed, thus dropping all stitches, see Fig. 62. Reset edge springs.

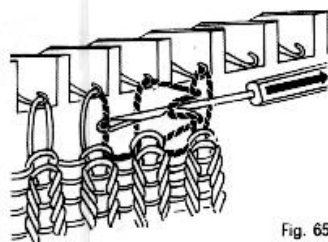


Fig. 65

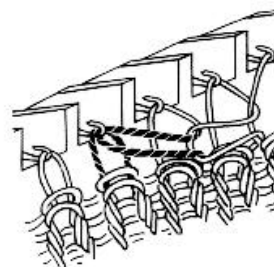


Fig. 66

Lock is at left

Now on the left transfer the 4 edge stitches from front to back bed, knit 1 row, release the loops on the front bed and from the left cast off with the left hand. Return needles to Neutral Position, reset edge springs. RC 188. Knit 10 normal rows. RC 198.

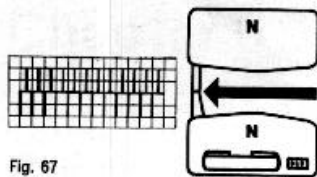


Fig. 67

On both edges increase 8 stitches

Always on opposite side to the lock, i.e. **at first at left** because lock is on the right, on front and back bed put 3 needles (not 4!) into Working Position. Reset edge springs, Fig. 67

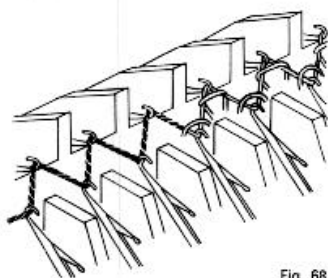


Fig. 68

Knit 1 row, Fig. 68.

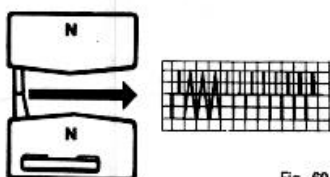


Fig. 69

Now at left on front and back bed put 4th needle in Working Position, also. **Then on the right**, on front and back bed put 3 needles in Working Position, Fig. 69, reset edge springs, knit 1 row. Now **on the right** on front and back bed put 4th needle in Working Position. Reset edge springs. RC 200.

Knit 10 normal rows. RC 210.

Casting Off

Lock at right. Transfer all stitches from front bed to needles of back bed, leaving front needles in Working Position, knit 1 row, release front loops by hand, lower front bed gently and cast off from the right the same as casting off several stitches, see Fig. 63 to 65. Break yarn and pull through last stitch, Fig. 70. If necessary you can cast off from the left by starting with lock at left.

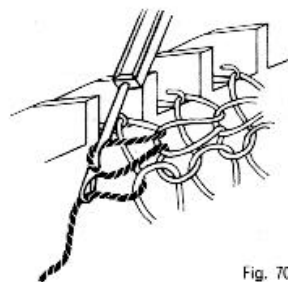


Fig. 70

If you want to decrease or cast off in double-sided Fisherman's Rib, where there are always single stitches on one bed and double stitches on the other, it is recommended that you always transfer the **single** stitches to the other bed, even if this means casting off on front bed instead of back.

To finish off this chapter let's quickly knit a small button-hole band

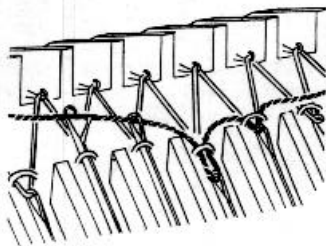


Fig. 71

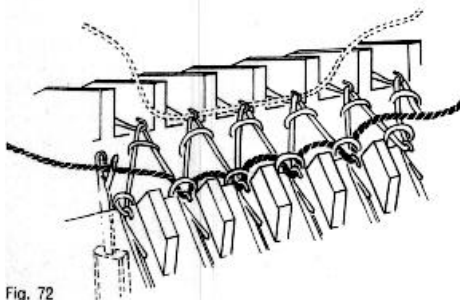


Fig. 72

A band with a button-hole over 7 needles

Racking handle down, lock at right, RC 000

Cast on 20 stitches in K/K (10 needles in Working Position on each bed, follow needle rule!)

Knit 10 normal rows. RC 10.

On front bed advance the 4th to 7th needle (4 needles) until the stitches are behind the open latches. Place contrast thread over the open needles and knit each stitch separately by hand: move needle back until stitch slides over the needle head (needle in Working Position), Fig. 71.

On back bed advance the 4th to 6th needle (the 3 needles between front needles) and knit each stitch separately by hand with a piece of contrast thread, Fig. 72.

With the green tool pull down the two ends of the contrast thread between the beds, Fig. 72 at left.

Knit 10 normal rows. RC 20

Cast off.

Once the work is finished remove the contrast threads. Pick up the open stitches with a darning needle and double thread and finish off with button-hole stitch.

A button-hole with an odd number of stitches (e.g. 7) is always nicer than one with an even number of stitches (e.g. 8)

We recommend you practise this lesson several times before proceeding with the following lessons.

If the tension arm points upwards

Every time you have interrupted knitting, e.g. because you had to reset the lock:

pull down yarn between the back eyelet B and the yarn holder until the tension arm is in a horizontal position. Then release yarn and continue knitting, see also page 21, Fig. 54.

How to start a new ball of wool

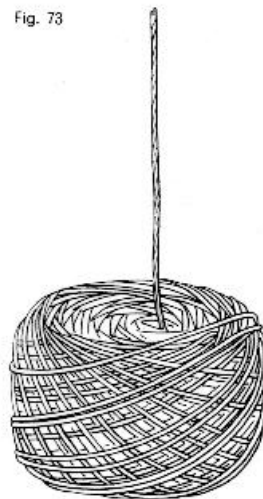
Before the old ball of wool is finished, knit one more complete row, drop the end of wool between beds, then thread new ball as first one and start it from the edge, holding the new end down between the beds. Once the work is finished darn loose ends at the outside edges.

Wind your wool carefully, it saves you trouble!

The yarn must always run easily from the centre, Fig. 73. Balls wound by hand are not recommended, because they jump about in the yarn holder and cause an uneven flow of the yarn. If you do not yet own a wool-winder, we suggest the purchase of the PASSAP-wool-winder.

Wax your wool with paraffin! This will cause an even flow of the yarn, an easier knitting and a softer texture.

Fig. 73



Chapter 6

How to knit — second part

Basic pattern: K/K Rib

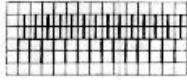


Fig. 73 a

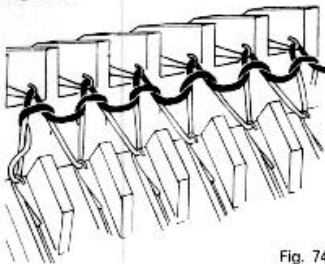


Fig. 74

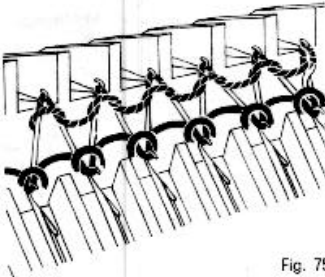


Fig. 75

Basic pattern: 1:1 Rib

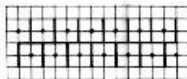


Fig. 76

After having learned how to knit K/K let's go on to some other type of knitting. Furthermore, in doing so, you will learn "the cast on with tubular rows" which is recommended as a solid edge.

Starting Position for all types of knitting: lock with threaded feeding eyelet at right, pushers within pusher rails.

In your first lesson you have learned the "quick cast on with racking" which makes a soft edge similar to handknits. If, however, you want a really solid edge for a sweater — e.g. for a schoolboy — we recommend you to use the "cast on with tubular rows", which is explained below.

Castings on with tubular rows

Starting Position: Racking handle down, red strippers, 120 needles in Working Position (60 on each bed, observe needle rule!) fix edge springs.

Lock at right $\frac{N}{N}$, StS 1. (Always set stitch size 2 numbers lower than normal knitting when casting on.)

1st row: form the zig zag (**do not rack back bed!**)

2nd row: tubular on back bed: — lock $\frac{CX}{CX}$, back StS 3, (1st tubular row, Fig. 74)

3rd row: tubular on front bed: — front also StS 3 (2nd tubular row, Fig. 75)

4th row: tubular on back bed (3rd tubular row)

5th row: tubular on front bed (4th tubular row)

For certain types of yarn two tubular rows are sufficient. RC to 000, lock to $\frac{N}{N}$

From 6th row onwards: knit 30 rows K/K.

To remove the knitting without casting off.

Remove feeding eyelet with threaded yarn from its socket, move the lock twice freely over the needles so that the knitting is released, put feeding eyelet back in place. Break yarn beneath the beds, leaving the end of yarn ready for the next cast-on.

Now we are going to knit a welt in 1 plain 1 purl as by hand, then double sided Fisherman's Rib and transfer of stitches to the other bed for stocking stitch. You will see that 1:1 knitting is much looser than K/K knitting.

Starting Position: Racking handle up, red strippers: put 60 needles into Working Position (30 on each bed) and, observing needle rule, return every alternate needle into Neutral Position to obtain 1:1 division, checking that each needle in Working Position is opposite a needle in Neutral Position on the other bed.

Set edge springs. Lock at right $\frac{N}{N}$, StS 1.

1st to 5th row cast on as for K/K

i.e. form the zig zag, set lock to $\frac{CX}{CX}$ and knit 4 tubular rows.

After the 5th row: lock at left $\frac{N}{N}$, StS $2\frac{1}{2}$, knit until RC reads 10.

Double sided Fisherman's Rib in 1:1

Lock at right $\frac{EX}{EX}$, knit 30 rows, RC 40.

Normal: Lock at right $\frac{N}{N}$, knit 10 rows, RC 50.

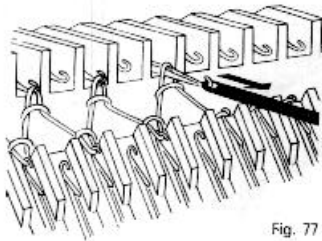


Fig. 77

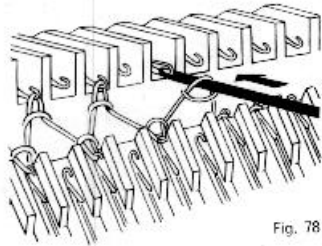


Fig. 78

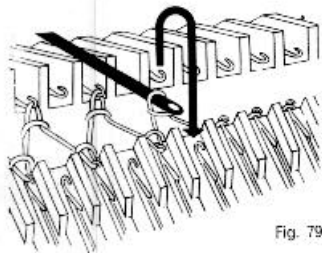


Fig. 79

Changing to stocking stitch on back bed

If you have to cast off after having done ribbing, then transfer stitches of front bed to the needles of back bed. This way it is easier to manipulate the green tool for casting off.

Transfer the stitches from front bed to the back just as from the back to the front: take the stitch onto the transfer tool, hold it in front of the corresponding needle of the back bed, hook the transfer tool in this needle and let stitch slip into the needle head. Put front bed needle in Neutral position.

Changing to stocking stitch on front bed:

Transfer the stitches from back bed to the empty needles of front bed as follows:

Place transfer tool (see page 23, Fig. 60) in needle head, then pull upwards until stitch slides behind the open latch, Fig. 77.

Push back transfer tool until the stitch slides over the closed needle head onto the decker needle, Fig. 78.

Remove transfer tool and place other end into the empty needle of the front bed. Tilt tool, until the stitch slips into the needle head, Fig. 79. Remove transfer tool and put needle of back bed into Neutral Position.

After you have transferred all stitches from back to front and reset the edge springs:

lock at right $\frac{GX}{N}$, set StS higher, i.e. to 5, insert black strippers.

Knit 10 rows stocking stitch, then release stitches as described under K/K.

Note: You will learn how to make patterns on single bed at a later lesson.

Basic pattern:

2:2 Rib

This type of knitting is mainly used for a tight welt. You may also do Fisherman's Rib in 2:2 but for this you must use black strippers. You will, however, get a better effect with other needle divisions.

Starting position: Racking handle down, red strippers.

Put 120 needles in Working Position as for K/K (60 needles on each bed). Now on front bed return 3rd and every following 3rd needle into Neutral Position and on back bed return the 1st and every following 3rd needle into Neutral Position = 2 x 1 division on each bed over a total width of 120 needles, Fig. 80 at left. This is the basic position for knitting 2:2. Needle rule now applies to 2 edge needles.

Set edge springs, lock to $\frac{N}{N}$, StS1.

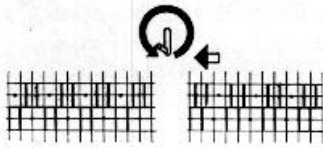


Fig. 80

Turn handle one full circuit to the left, in order to get the needle position for casting on, Fig. 80 at right.

1st to 5th row as casting on for K/K

i.e. form the zig zag, set lock to $\frac{CX}{CX}$ and knit 4 tubular rows. RC 000

before the 6th row: turn handle one full circuit to the right back into basic position, Fig. 80 at left. Set lock to $\frac{N}{N}$, StS3.

Knit 40 rows and release work.

Basic pattern:

Stocking stitch — on one bed

For instant cast-on with pushers see page 32

You have learned to knit a 1:1 welt and to transfer to Stocking Stitch. Now we cast on for stocking stitch immediately.

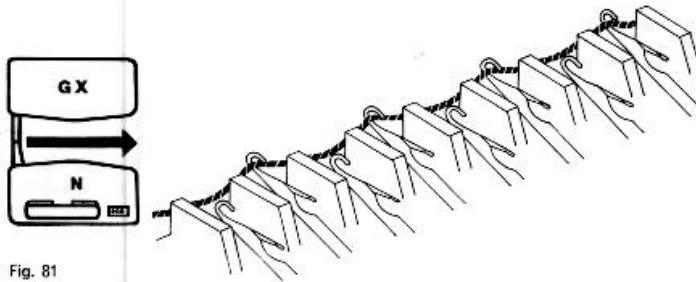


Fig. 81

Casting on for stocking stitch on front bed

Starting Position: Racking handle down, black strippers.

60 needles into Working Position, now return every alternate needle into Neutral Position. Set edge springs, lock at right $\frac{GX}{N}$, StS 5 on front lock.

1st row: move lock to the left.

2nd row: Bring empty needles from Neutral Position to Working Position, Fig. 81, move lock to the right.

Before the 3rd row: RC to 000, knit 20 rows, RC 20.

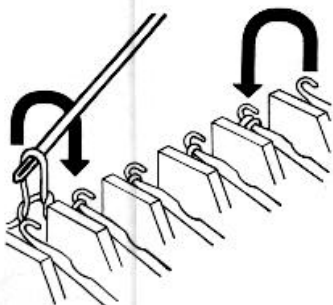


Fig. 82

Decreasing and Increasing on Single Bed Work

Decrease 1 stitch at both ends 3 times

Lock at right. Transfer edge stitch to the next needle in Working Position, return empty needle into Neutral Position, reset edge spring. Repeat on the left, Fig. 82.

Knit 2 rows and repeat twice. RC 26

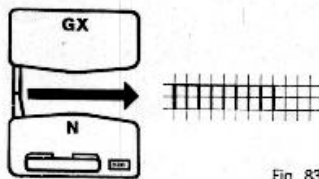


Fig. 83

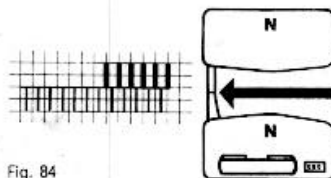


Fig. 84

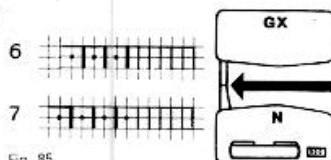


Fig. 85

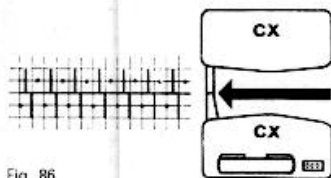


Fig. 86

Increase 1 stitch at both ends 3 times

Only on the side where the lock is, i.e. at first on the right, put 1 needle in Working Position reset edge spring, knit 1 row. Then at left put 1 needle in Working Position, reset edge spring, Fig. 83, knit 1 row.

Repeat twice. RC 32

Knit 10 rows. RC 42

Decrease 6 stitches at both ends

Always on the side where the lock is, i.e. at first on the right, place 6 needles on back bed, into Working Position, set back lock to N (lock $\frac{N}{N}$), Fig. 84, knit 1 row.

As explained in the first knitting lesson (Fig. 62 to 66) release loops by hand and cast off stitches, return 6 needles on each bed into Neutral Position, reset edge springs.

Then on back bed on the left, place 6 needles into Working Position, knit 1 row, release loops on these needles by hand and cast off. Return 6 needles on each bed into Neutral Position, reset edge springs. RC 44

Lock $\frac{GX}{N}$

Knit 10 rows. RC 54

Increase 6 stitches at both ends, Fig. 85

Needle position for increasing an even number of stitches (6), Fig. 85 above.

Needle position for increasing an odd number of stitches (7), Fig. 85 below.

On the opposite side to the lock, i.e. at first on the left, put every alternate needle (3 needles) into Working Position, reset edge springs, knit 1 row. Then on the left, put the 3 Neutral Position needles into Working Position as well. At the same time, on the right advance 3 Neutral Position needles. Reset edge springs, knit 1 row. Then on the right put the 3 Neutral Position needles into Working Position. RC 56

Knit 10 rows. RC 66

Release knitting.

Casting off in stocking stitch

Lock $\frac{N}{N}$. On bed not in use put all needles in Working Position, knit 1 row. Release loops that have been formed on this bed. Cast off from the right.

Basic pattern :

Stocking stitch on both beds

Tubular, casting on and knitting

Racking handle down, black strippers. Lock $\frac{CX}{CX}$, StS 5.

On each needle bed put every alternate needle into Working Position: on front bed the 2nd, 4th, 6th needle and so on, on back bed the 1st, 3rd, 5th needle and so on, Fig. 86.

Knit 1 row thus casting on the front bed.

Knit 1 more row thus casting on the back bed.

Now, on front and back bed, put Neutral Position needles into Working Position, reset edge springs, and continue knitting, 40 rows = RC 40. Two movements of the lock complete one row of tubular knitting — therefore each completed tubular row will add 2 numbers on RC.

**Before finishing this chapter
for the first time we will knit
with the automatic patterning device!**

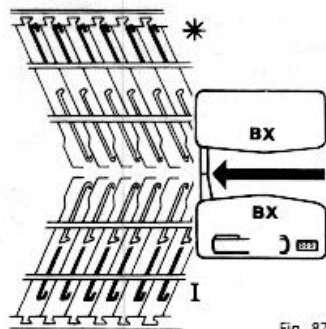


Fig. 87

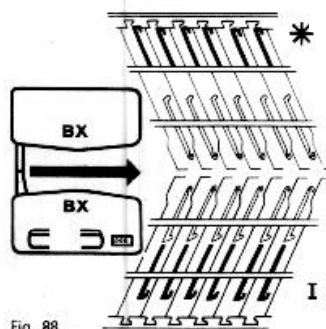


Fig. 88

Tubular knitting with the use of pushers

Bring a pusher into action for every needle that is in Working Position. The pushers are released by pushing the front pusher rail button to the right, the back pusher rail button to the left. (See page 12, Fig. 33). Place pushers in Working Position, i.e. touching the feet of their respective needles in Working Position. (See page 11, Fig. 32/I).

Release pusher rail button making sure no pusher is jammed in the rail. (Pusher rail should **spring** back into position).

Tubular knitting open on right side

On back bed put pushers into Rest Position (page 11, Fig. 32/*) on front bed leave them in Working Position. Lock $\frac{BX}{BX}$ and press down **right** arrowed keys on **both** locks, Fig. 87

Knit 41 rows. RC 81. Lock is on the left.

Tubular knitting open on left side

On back bed the pushers are in Rest Position, on front bed they are in Working Position, lock at left set at $\frac{BX}{BX}$. On both locks press down 0-keys, in order to release right arrowed keys, then press down **left** arrowed keys on both locks, Fig. 88. Knit 41 rows. RC 122. Lock is on the right.

Changing back to tubular knitting

Return all pushers into Neutral Position, i.e. back within the pusher rail. Lock at right $\frac{CX}{CX}$, press down 0-keys, knit a few rows and remove knitting.

Casting on for half-tubular with pushers

Open at the right side: lock at right $\frac{BX}{BX}$, black strippers.

On back bed advance every alternate pusher from the pusher rail into Rest Position, starting with the second pusher.

On front bed advance every alternate pusher from the pusher rail into Working Position, starting with the first pusher.

On both locks press **right** arrowed keys and knit 2 rows.

On back bed advance alternate Neutral Position pushers to Working Position, and on front bed advance alternate Neutral Position pushers to Rest Position. Every needle has a pusher out of the rail. Continue knitting as described above in Fig. 87.

Open at the left side: lock at left $\frac{BX}{BX}$, black strippers.

On back bed advance every alternate pusher from the pusher rail into Working Position, starting with the second pusher.

On front bed advance every alternate pusher from the pusher rail into Rest Position, starting with the first pusher.

On both locks press down **left** arrowed keys and knit 2 rows.

On back bed advance alternate Neutral Position pushers to Rest Position and on front bed advance alternate Neutral Position pushers to Working Position. Every needle has a pusher out of the rail. Continue knitting as described above in Fig. 88.

Chapter 7

How to knit — third part

Now we will give you a few further hints for shaping. First we are going to knit a double hem, then graduations in stocking stitch, a neckline and finally the first stitch patterns, using racking.

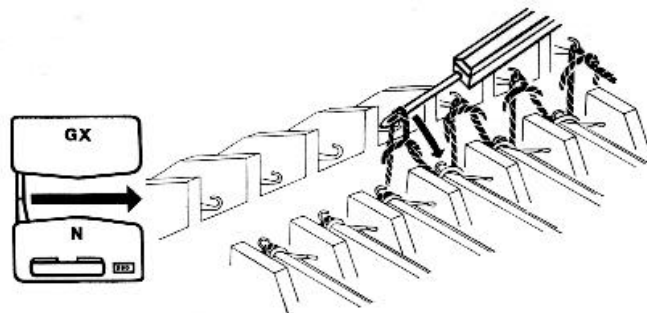


Fig. 89

The double hem

Starting Position: Racking handle down, black strippers, lock at right: $\frac{N}{N}$, StS1 $\frac{1}{2}$, RC 000

Put 120 needles into Working Position, 60 needles on each bed. Knit 1 row. RC 1.

Set lock to $\frac{CX}{CX}$, StS2 $\frac{1}{2}$, knit 2 rows, StS3 $\frac{1}{2}$, knit 2 rows, StS4 $\frac{1}{2}$ knit 36 rows. Lock at left, RC 41

How to transfer stitches from back to front bed: Remove edge springs, start on the left.

When all stitches have been transferred (on front bed there are 60 needles holding 2 stitches each), put empty needles on back bed into Neutral Position, lock at left $\frac{GX}{N}$, Fig. 89, fix edge springs, knit 1 row. Lock at right. RC 42

How to knit graduations (short rows) — working with pushers

To shape a garment it is often necessary to knit with graduations (short rows for darts, flared skirts etc.). Example for knitting a double graduation consisting of two darts: one dart running from the left side towards the middle and another one from the right. To do this you have to knit short rows, i.e. on both sides certain stitches will not be knitted and therefore the corresponding needles will be temporarily left out of action.

At first decrease gradually at both ends

On front bed bring one pusher each into Working Position for every working needle. Lock at right $\frac{GX}{BX}$.

Instant cast-on with pushers

On front bed put needles in Working-Position and corresponding pushers out of blocking-rail. Arrange pushers in 1:1 division, i.e. 1 pusher in Working-Position, 1 pusher in Rest-Position throughout. Set front lock at BX \leftrightarrow and back lock at GX.

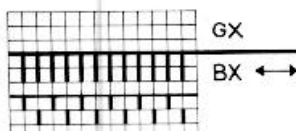


Fig. 89a

Knit 2 or 4 rows with this setting, moving the lock slowly and carefully. Now set N-X lever at N, press zero-key and put all pushers back within the blocking rail. Continue knitting in stocking stitch.

** On the left lower 5 pushers into Rest Position, Fig. 90, knit 1 row, then wind yarn around the 5th needle on the left, Fig. 91. Now on the right, lower 5 pushers into Rest Position, knit 1 row, wind yarn around 5th needle on the right, Fig. 92 ** — Repeat three times from ** to **.

Now note: there are 20 pushers in Rest Position at both ends of the knitting. The pushers of the centre 20 needles are in Working Position. Lock at right. RC 50.

Then increase gradually at both ends

** On the left push up the 5 inner Rest Position pushers into Working Position, knit 1 row. On the right push up the 5 inner Rest Position pushers into Working Position, knit 1 row **. Repeat three times from ** to **. Lock at right. RC 58.

When all pushers have been returned into Working Position push them into Neutral Position, i.e. back within the pusher rail.

Lock at right $\frac{GX}{N}$, knit 22 rows. RC 80.

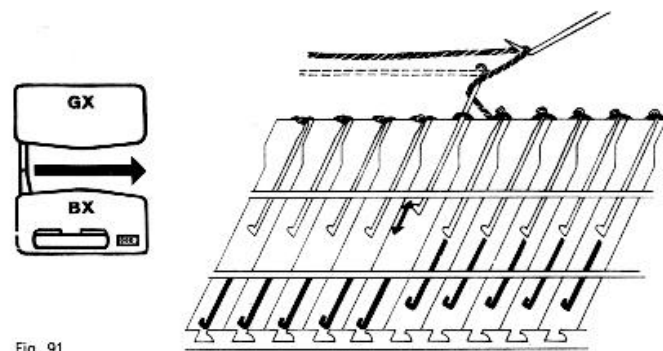
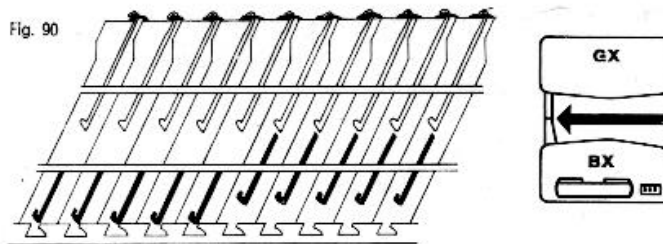


Fig. 91

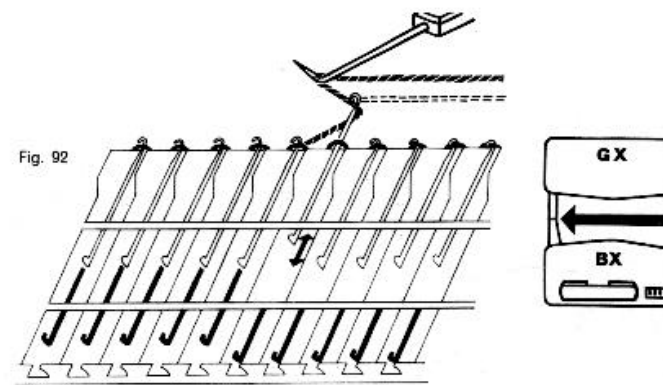


Fig. 92

A few more words about short rows

Of course you can use the gradual decreasing as well as the gradual increasing separately, depending on the shape of the garment.

Now we are giving three examples. Don't forget to always wind the yarn around the last needle in Rest Position, see Fig. 91 and 92, when doing the first graduations.

Graduations on both sides AFTER having knitted the waist welt for trunks (pants) in stocking stitch.

Start knitting short rows from the middle. Lock on the right $\frac{GX}{BX}$. First place all pushers into Rest Position.

On the right hand half of knitting raise the pushers into Working Position plus e.g. 10 pushers from the centre left for the first graduation at left, knit 1 row. Now on the right return all pushers into Rest Position leaving 20 in the centre. Knit 1 row. On the left raise 10 inner pushers to Working Position, knit 1 row, on the right

raise 10 inner pushers to Working Position, knit 1 row, etc. until all pushers are back in Working Position. Then put all pushers back into the pusher rail (Neutral Position) set lock to $\frac{GX}{N}$ and continue in stocking stitch to knit the body and the legs.

Graduations on both sides BEFORE knitting a waist welt for trunks (pants) in stocking stitch.

Start knitting short rows from the outside. Lock on the right $\frac{GX}{BX}$. Advance all pushers into Working Position.

On the left return e.g. 10 pushers into Rest Position, knit 1 row, on the right return 10 pushers into Rest Position, knit 1 row etc. until all pushers are in Rest Position. Then put all pushers back behind the pusher rail into Neutral Position, set lock to $\frac{GX}{N}$ and continue in stocking stitch to knit the waist welt.

How to divide the knitting for a neck cut, when knitting either stocking stitch or K 1 Purl 1 with all needles or any single or double bed stitch pattern with lock at BX.

Special note: You can follow this method only if you do not need to set the lock at N whilst knitting.

A) To divide the work when knitting stocking stitch. Lock at right. For right half of needles put pushers in Working-Position, set lock at BX knit right half of knitting.

B) To divide work when knitting a BX pattern. Lock at right. For right half of needles leave pushers in their position. For left half of needles put all pushers back into Neutral-Position (within the needle rail).

Lock setting at back GX, at front leave BX and knit right half of knitting.

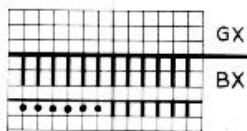


Fig. 92a

C) For double bed knitting. At back also set lock at BX and arrange needles and pushers as at front. Then knit right half of knitting, back and front at the same time, as described above.

Left half of knitting for A, B or C

After having finished the right half, continue knitting left half the same way but with reversed shapings.

Graduations on one side for darts, on a skirt knitting crosswise

Lock on the right $\frac{GX}{BX}$. Raise all pushers into Working Position. On the left return e.g. 10 pushers into Rest Position, knit 2 rows, on the left return 10 pushers into Rest Position, knit 2 rows etc. until all pushers are in Rest Position. Now on the right raise 10 pushers into Working Position, knit 2 rows, raise 10 pushers into Working Position, knit 2 rows etc. until all pushers are back in Working Position again. Then put all pushers back behind the pusher rail into Neutral Position, set lock to $\frac{GX}{N}$ and continue stocking stitch.

For graduations on double-bed work proceed in the same manner using pushers on both beds with both locks set to BX (lock $\frac{BX}{BX}$)

How to divide work — example: for a neck

When the work has to be divided into two sections, e.g. leggings, zip-openers, pockets etc. one half of the work is put out of action while the other half is completed.

For practice let us knit a neckline

Knit stitches for left shoulder with contrast yarn. You need about two yards.

On the left remove edge spring and with half of the needles, i.e. with 30 stitches knit 1 row by hand as for button-hole, Fig. 93 (see also first knitting lesson). Then, in the same way knit a second row, but returning needles completely into Neutral Position, Fig. 94. 30 stitches have been put out of action and are temporarily held by loops of the contrast yarn. Pull down between the needle beds both ends of contrast yarn.

For a very long opening it is recommended that these stitches are removed from the machine with contrast yarn.

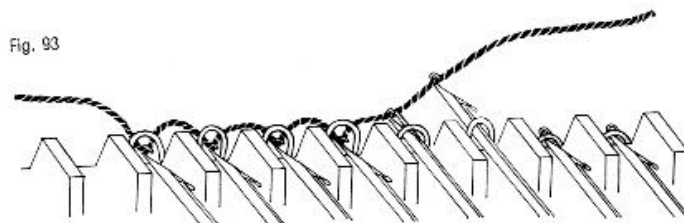


Fig. 93

Right shoulder

Move edge spring over the new edge needle on the left.

Lock at right, RC 000

With the remaining 30 needles knit right shoulder, decreasing on the left for the neckline. The lock being on the right, knit 1 row before starting to decrease as follows: on every alternate row decrease three stitches; 2 stitches, and 1 stitch three times. Continue knitting until row counter reads 20. Shape shoulder by casting off 11 stitches at the right on the next 2 alternate rows.

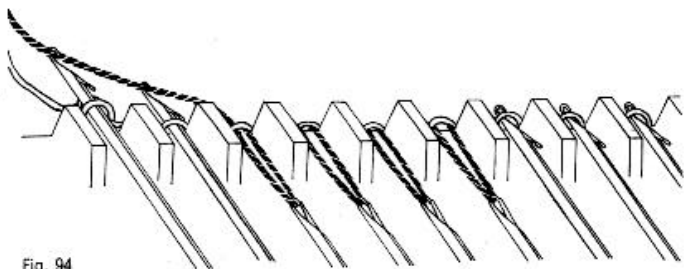


Fig. 94

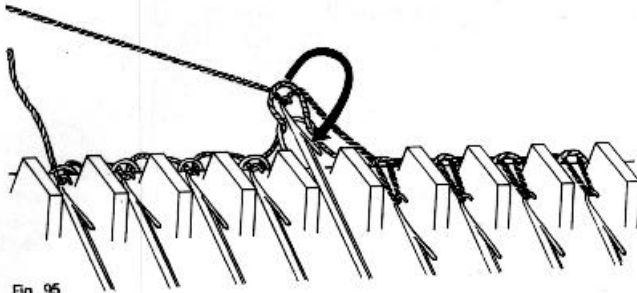


Fig. 95

Left shoulder

First move threaded lock to the left. Then bring needles into working position and unravel the contrast yarn in the following manner:

Others methods to divide work With decker comb

Take stitches for left shoulder part on the decker comb as follows: Remove lid of comb, hook the needles of comb into the latch needles, move comb forwards and backwards, so that the stitches slide on decker comb. Close lid and let decker comb drop down between both beds. Put empty needles in Neutral-Position.

Knit right shoulder part and put the right side needles in Neutral-Position.

Advance left side needles in Working-Position and open latches. Raise decker comb between the beds, remove lid, hook needles of comb into latch needles and let stitches slide into open needle heads. Remove decker comb and knit left shoulder part.

Unravelling rows in stocking stitch

Pull the yarn gently but firmly until it becomes taut. In doing so the stitches of the previous row ride up. (Be careful that they do not glide behind the latches). Fig. 95, 96.

As soon as the 2 rows knitted with contrast yarn have been unravelled and the original stitches are hanging in their needle heads again, reset edge springs, set RC to 000 and knit the left shoulder as for the right but reversing shaping, starting from the left hand side of the knitting.



Fig. 96

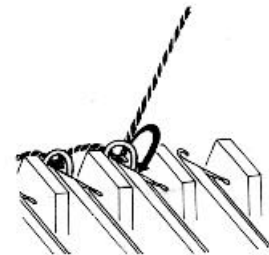


Fig. 97

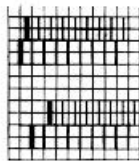
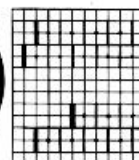


Fig. 98



Knitting with racking (see also chapter 3)

Please keep the following basic rules in mind:

1. **Only the back bed** moves sideways, to the left, when the handle is turned to the left, to the right, when the handle is turned to the right.
2. **For racking one complete needle division you must:**
When knitting in the handle down position, make **one** complete circuit of handle, Fig. 97
When knitting in the handle up position (Transport position) make **two** complete circuits of handle, Fig. 98
3. **The needle rule** must also be observed for knitting with racking. End needles in Working Position — left at front and right at back.

Therefore, **before** putting needles into working position for casting on, rack the back bed to the left by as many needle divisions as you will need for the stitch pattern.

Racking patterns on stocking stitch

If you want to knit a zig-zag stripe with 6 racking positions, turn handle to the last position on the left, leaving it **down**.

On front bed put 21 needles into working position, threaded lock at right $\frac{N}{N}$, StS5, black strippers.

On front bed cast on for stocking stitch, as described on page 29, knit 1 row, lock at right. Set RC to 000.

From the left on front bed count 7 needles, then put 3 needles into working position on the back bed.

**** Knit 2 rows, then turn handle once to the right ****
Repeat 5 times from **** to ****.

**** Knit 2 rows, then turn handle once to the left. ****
Repeat 5 times from **** to ****.

Repeat twice from the beginning.

In the **PASSAP** knitting language this reads as follows:

Starting Position

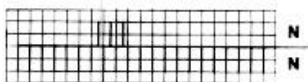


Fig. 99

6 times: 2 R, then rack 1 Nd to the right

6 times: 2 R, then rack 1 Nd to the left

Repeat.

Racking patterns on double bed work

You get an interesting "herringbone" effect when you combine double sided Fisherman's Rib with racking. For casting on handle down, lock at right $\frac{N}{N}$.

Put 40 needles in working position for K/K, cast on and knit until RC reads 4.

Now set lock to $\frac{EX}{EX}$ and RC to 000. **** Rack 1 Nd to the left, knit 1 row.**

Rack 1 Nd to the right, knit 1 row. **** Repeat 6 times from **** to ****. Then knit 1 row and repeat from the beginning.**

In the **PASSAP** knitting language this reads as follows:

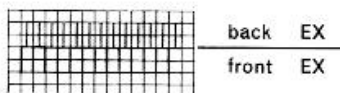


Fig. 100

Cast on, then lock at right

7 times {
Rack 1 Nd to the left
Knit 1 row
Rack 1 Nd to the right
Knit 1 row
Knit 1 row
Repeat

For practice, please knit three complete patterns.

Chapter 8 The Sock

Now we are going to knit a man's sock so that you will learn how to transfer stitches from the welt to tubular knitting, how to knit a wedge-shaped heel and how to decrease the toe. You will find a description for each of these three special operations within the knitting instructions for the sock. For better understanding, however, see detailed, illustrated explanations on pages 38 to 41.

Man's sock with a wedge-shaped heel

Size: 10½" (appr.)

Materials for one pair: appr. 3½ ounces medium sock wool, with nylon if preferred.

Stitch size: rib 2½, stocking stitch tubular 5.

Pattern: welt: 1 : 1 rib

lock $\frac{N}{N}$, handle up

leg and foot tubular

lock $\frac{CX}{CX}$, black strippers, handle down.

Welt: Lock $\frac{N}{N}$, red strippers, handle up.

Cast on 72 stitches in 1 : 1 division (36 needles on each bed) and knit 40 rows. Lock at right.

Transferring stitches for tubular knitting, see also page 38, Fig. 101 to 108

First transfer all stitches from front bed to the empty needles on the back bed and return empty needles on front bed to Neutral Position. Handle down, black strippers, set StS at 5, knit 2 rows. At the right unravel 18 stitches. In the centre of front bed raise 36 needles to Working Position. Now at right, using the decker comb transfer 18 edge stitches from back to front bed. Repeat at left. At centre front cross first and last stitches in order to avoid a hole. Now there are 36 needles in Working Position on each bed. Return empty needles to Neutral Position. RC at 000.

Leg: Lock $\frac{CX}{CX}$, black strippers, handle down.

Knit 141 rows, lock at left. RC to 000.

Heel: Lock $\frac{GX}{BX}$, black strippers, handle down.

Place a pusher for every needle in use on the front bed in Working Position. Then, at left, wind yarn around edge needle, lower end pusher to Rest Position, knit 1 row. At right wind yarn around the corresponding needle, knit 1 row. Repeat. Continue until 14 pushers are left in Working Position. Then, on the same side as the lock raise 1 pusher to Working Position, knit 1 row, repeat until all pushers except for the 2 edge ones are back in Working Position again. Before the last pusher on the left is put in Working Position, transfer the slip stitch of the front edge needle to the back edge needle, knit 1 row and repeat on the right.

Lock at right. Return all pushers behind pusher rail. RC to 000

Foot: Lock $\frac{CX}{CX}$, black strippers, handle down. Knit 162 rows. RC to 000

Toe: See also page 40, Fig. 112

Knit 52 rows, simultaneously with the double decker needle on both ends decrease 2 stitches every fourth row, 8 times. Then 2 stitches every alternate row in the following manner: decrease 1 stitch on the right of back bed, on the right of front bed knit 1 row, on the left of front bed, on the left of back bed, knit 1 row. Knit this way until 8 stitches remain, break yarn and pull end through.

To make up: Graft the seam on back part of the welt.

Abbreviations

StS = Stitch size

RC = Row Counter

Lock $\frac{N}{N}$ = set NX lever on back and on front to N

Lock $\frac{EX}{N}$ = set NX lever on back to EX and on front to N

Zig-zag = casting on row, the forming of the wool between the needles of both beds

st. = stitch

Nd = needle

L = left

R = right

For other abbreviations see page 42

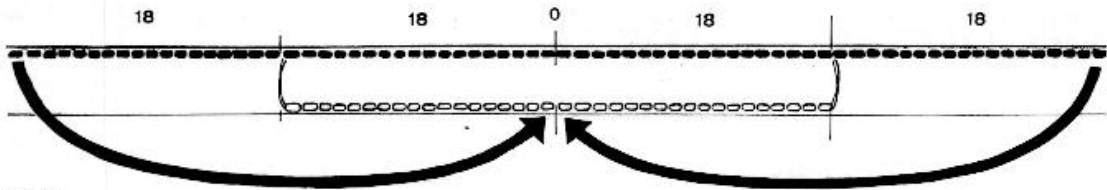


Fig. 101

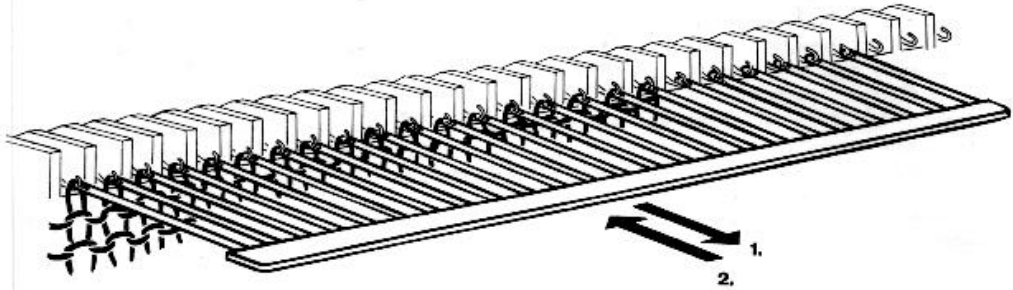


Fig. 102

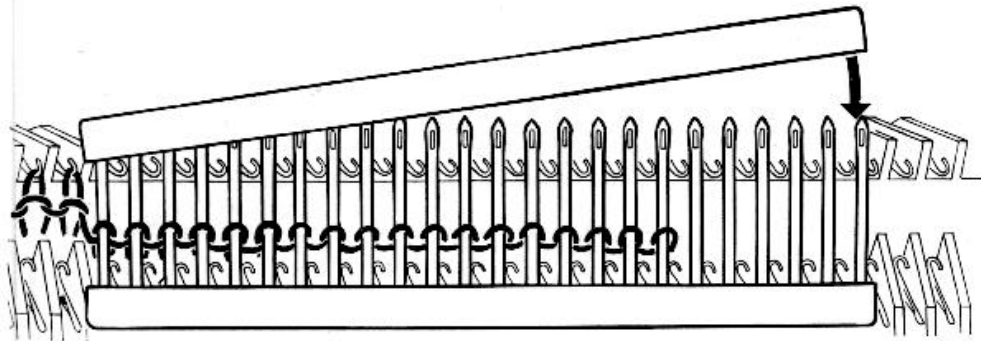


Fig. 103



Fig. 104

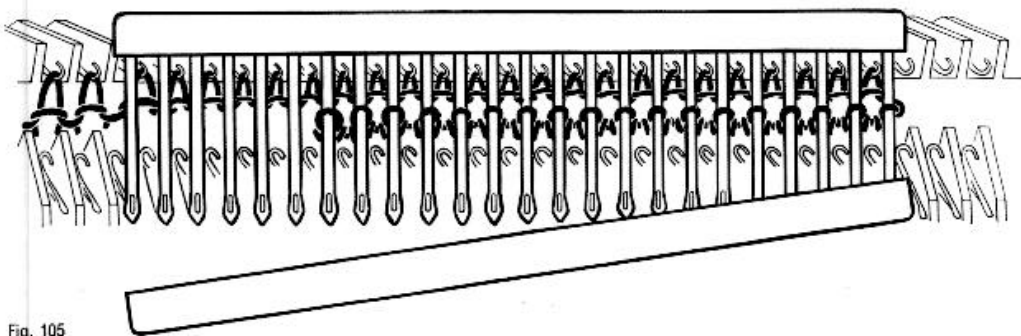


Fig. 105

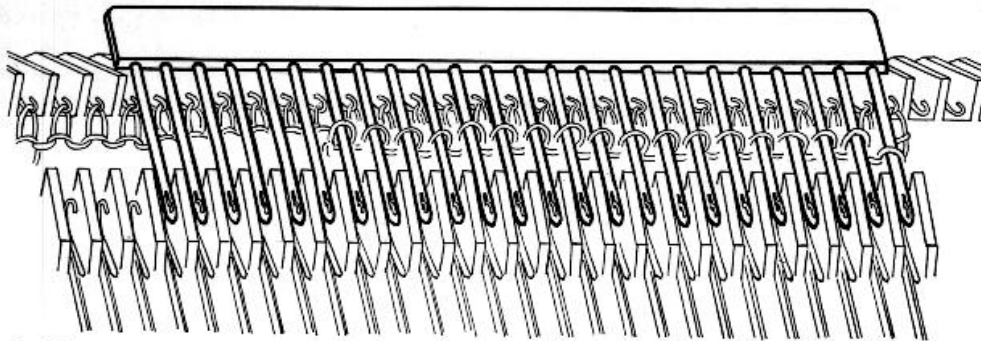


Fig. 106

How to transfer stitches with the decker comb for tubular knitting after having completed a 1 : 1 ribbed welt.

First transfer all stitches from front to the empty needles on the back bed and return empty needles on the front to Neutral Position. Handle down, black strippers, set StS at 5, knit 2 rows.

Lock at right. On the same side as the lock unravel $\frac{1}{4}$ of the stitches. In exactly the centre of the front bed put half as many needles in Working Position as there are on back bed. See page 38, Fig. 101.

Open latches of front needles. Remove the lid of decker comb.

At the right take $\frac{1}{4}$ of stitches onto the decker comb, proceeding the same way as you would with a

single decker needle: hook in, advance, push back, pulling knitting slightly downwards at the same time, Fig. 102.

Cover deckercomb with lid, Fig. 103.

Move edge spring over new edge needle on the right of back bed. Return empty needles in Neutral Position at back.

Lower front bed. Drop decker comb between both beds, Fig. 104, turn towards the centre and lift it up again. Raise the front bed. Remove lid of decker comb, (which is now at the front), Fig. 105, and transfer stitches to half the

front needles, Fig. 106. Move edge spring over the new edge needle on the right of front bed.

Repeat on the left also transferring $\frac{1}{4}$ of stitches, Fig. 107, and return empty needles. Cross the two centre stitches on front bed in order to prevent a hole by taking the left centre stitch onto the single decker needle of the red tool and the right centre stitch onto the single decker needle of the green tool. Cross the tools and transfer the left stitch to the right needle and the right stitch to the left needle, Fig. 108. Now lock to CX, black strippers. Handle down. Continue tubular knitting.

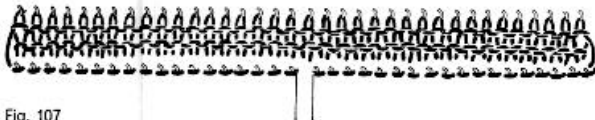


Fig. 107

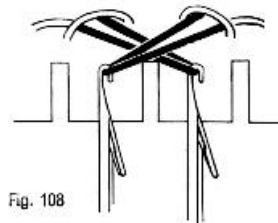


Fig. 108

How to shape a heel

Lock at **left**. In tubular knitting heels are only done on the front bed. The back lock is set to free move, the front lock is set to knitting with pushers, i.e. lock at left $\frac{GX}{BX}$.

On front bed over whole width of knitting bring pushers into Working Position.

Gradually put pushers into Rest Position

At the left wind yarn around edge needle, put pusher into Rest Position, knit 1 row. Then at the right wind yarn around edge needle (see page 33, graduations, Fig. 92), put pusher into Rest Position, knit 1 row. Continue working like this until only about 10 to 14 pushers (appr. one third) are left in Working Position in the middle of work, Fig. 109. Lock at left.

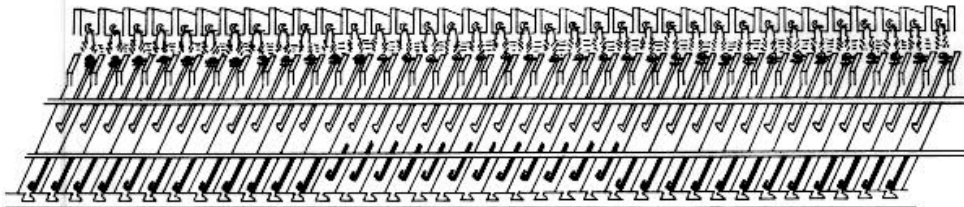


Fig. 109

Gradually bring pushers back to Working Position

Starting from the centre at the left, put 1 pusher into Working Position, knit 1 row. Then on the right put 1 pusher into Working Position, knit 1 row. Continue working like this, until on the left and on the right only the pushers of the edge needles are left in Rest Position. On the left transfer slip stitch only of front end needle to back end needle, Fig. 110 (left) and put pusher into Working Position, knit 1 row. On the right, transfer the slip stitch only of front end needle to back end needle, Fig. 110 (right). Now return all pushers into the pusher rail. Set lock to $\frac{CX}{CX}$ and continue tubular knitting. The slip stitch of the end needle is transferred so that a hole is avoided.

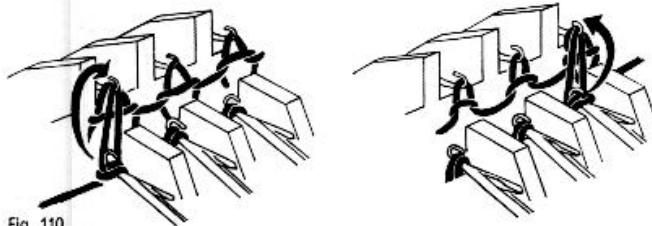


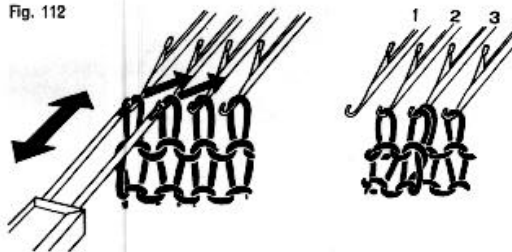
Fig. 110

Fully fashioning — e.g. for a toe

For fully fashioning do not decrease the edge stitches but the second stitches on the sides of the tubular knitting. Thus you get 2 stocking stitches between the decreases of front and back bed which form a neat line up to the toe.

** At both ends of front and back bed knitting, remove the two edge stitches with the double decker needle and transfer them 1 needle towards the centre. The 1st needle is now empty, on the 2nd needle there is 1 stitch, on the third needle there are 2 stitches. Knit 4 rows **. Repeat from ** 7 times. Now decrease in the same way on every alternate row until only 8 stitches remain, 4 on each bed. Break yarn and pull through the stitches.

Fig. 112



Fully fashioned shaping — a few hints

To decrease a sleeve or neck etc. use triple decker tool (black), transferring the 1st, 2nd and 3rd stitches onto the 2nd, 3rd and 4th needles.

For V-neck decreasing it is important that on both neck edges the last needles work on the front bed — contrary to the needle rule. Therefore before knitting the left shoulder you must transfer the last stitch from the back bed to the last needle of the front bed. This means you are one stitch short, but it does not show in the knitting. Decrease as before with the triple decker tool. This gives a most attractive finish and does not need a border.

To fully fashioned increase use tools with 1, 2 or 3 deckers, transferring the stitches 1 needle out and placing a cross thread onto the empty needle.

Chapter 9

How to knit Stitch Patterns

Now you have already become an experienced PASSAP Duomatic knitter. But before starting to knit the following stitch patterns you should again study Chapter 4. The part concerning the use of the diagram and the dial selector is especially important for knitting stitch patterns.

Changing colour with feeding eyelet

The basic colour is always threaded in the wool feed. Each contrast colour is fed through another feeding eyelet, which is placed into the eyelet support. It is recommended that the balls of the contrast colours be put into a receptacle on the floor.

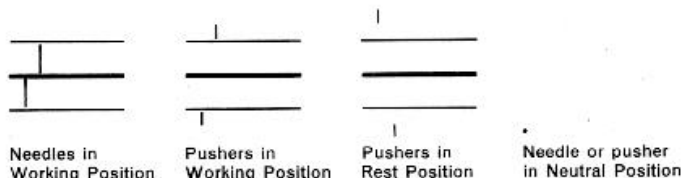
Colour change. Remove feeding eyelet which has been in use from the socket on lock and place it in the eyelet support. The yarn must run round the outward edge of the upper rail of the front bed so that it stays there and will not get entangled with the other wools. Now insert feeding eyelet for the next colour into socket on lock and continue knitting, feeding the yarn by hand above the feeding eyelet.

For knitting with three colours at first remove feeding eyelet with second contrast from eyelet support, then take eyelet which has been in use out of socket on lock and place in eyelet support.

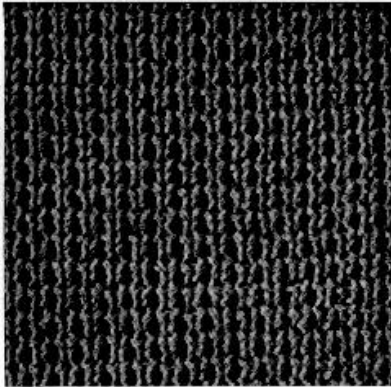
For knitting with more than three colours place additional feeding eyelet with yarn over the back edge of the eyelet support. Supplementary feeding eyelets are available as an optional from your PASSAP dealer.

Explanation: Starting Position always lock at right, i.e. after having formed the zig-zag and completed the tubular rows always knit one more row without pattern. Nd = needle, col. = colour, L = left, R = right. Cast on with racking = first arrange needles and pushers for pattern, then, before forming the zig-zag, rack back bed 1 needle towards the left (one full circuit of handle) and afterwards rack back bed towards the right, back into Starting Position again.

← = press left arrowed key
→ = press right arrowed key
↔ = press both arrowed keys
O = press centre key
RC = row counter
Front = side of knitting facing front bed,
Back = side of knitting facing back bed



In the stitch pattern books for the PASSAP DUOMATIC you will find a large range of other delightful stitch-patterns. Order the PASSAP DUOMATIC stitch pattern books (Z 2756 or 2808) from your PASSAP Dealer

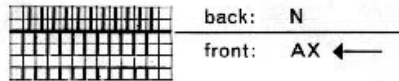


II = Stitch Patterns on TWO beds

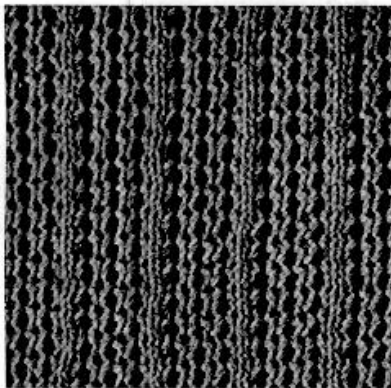
Stitch pattern II A 1

◀ back

fully automatic, handle down



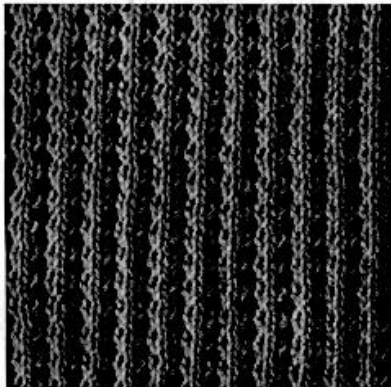
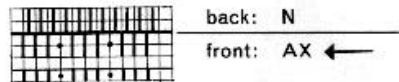
For AX stitch patterns we recommend – contrary to the general needle rule – to always put one supplementary needle into Working-Position at left on back bed, although the diagram does not show it.



Stitch pattern II A 2

◀ back

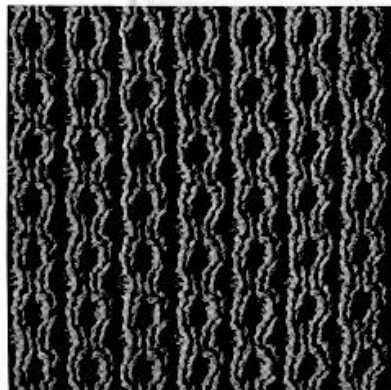
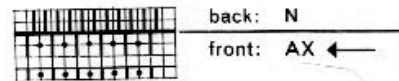
fully automatic, handle down, cast on with racking



Stitch pattern II A 3

◀ back

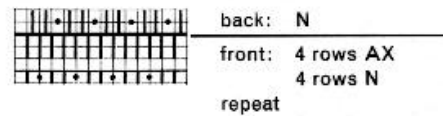
fully automatic, handle down, cast on with racking

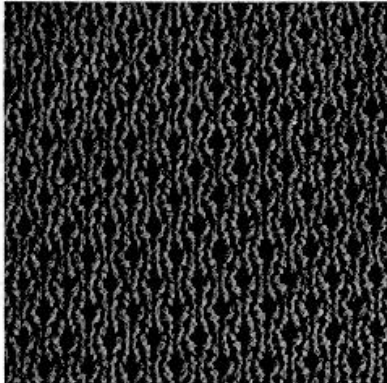


Stitch pattern II A 4

◀ back

handle down, cast on with racking

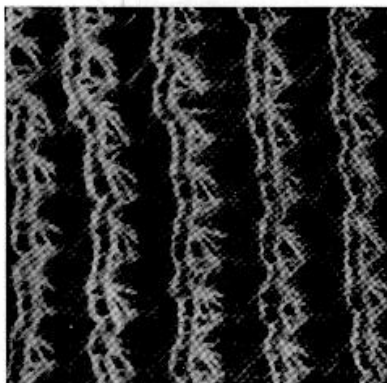
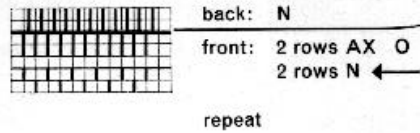




Stitch pattern II A 5

◀ back

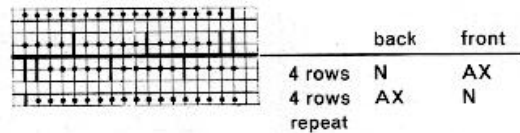
handle down



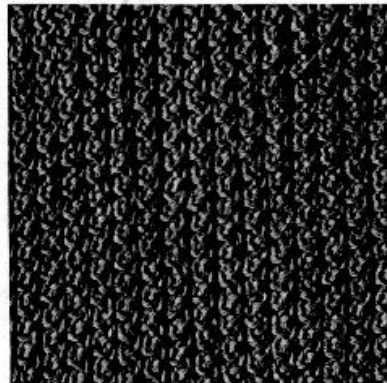
Stitch pattern II A 6

◀ back and front the same

very pretty for mohair wool, handle up, black strippers



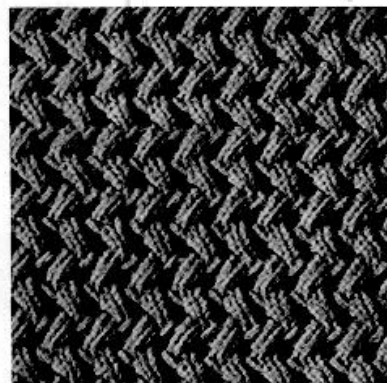
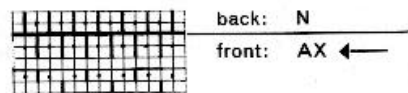
Special note: To get a nice and even edge always put 1 odd needle with pusher in Working Position at each end, i.e. left at front and right at back bed. Let yarn slide through your hand above the feeding eyelet.



Stitch pattern II A 7

fully automatic, handle up

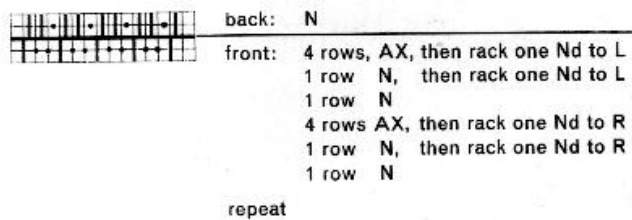
◀ back

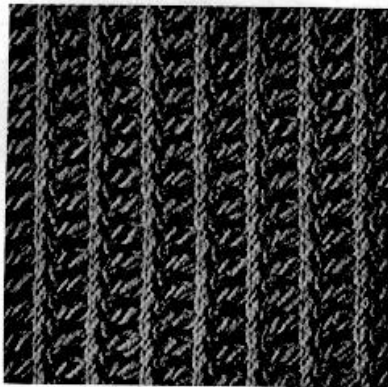


Stitch pattern II AV 1

handle down, cast on with racking

◀ back

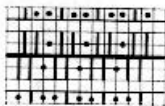




Stitch pattern II AV 2

handle down

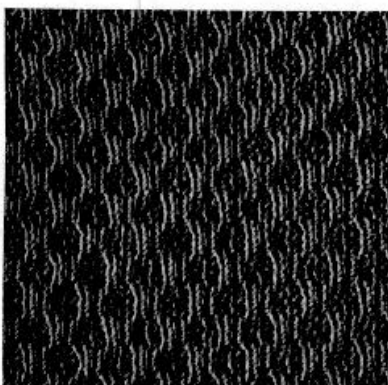
◀ back and front the same



back and front:

4 rows AX, then rack 1 Nd to L
2 rows N, then rack 1 Nd to R

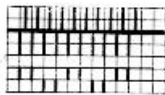
repeat



Stitch pattern II B 1

handle down

◀ back

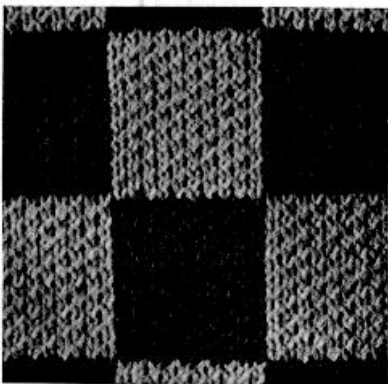


back: N

front: 2 rows BX ←
2 rows BX O

repeat

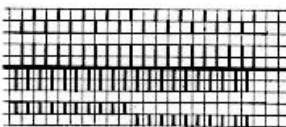
Special note: Set stitch size at back $\frac{1}{2}$ to 1 higher than at front. For fine yarns you may knit 4 rows at BX O instead of 2.



Stitch pattern II B 3

two colour Fairisle checks, green-white, handle down

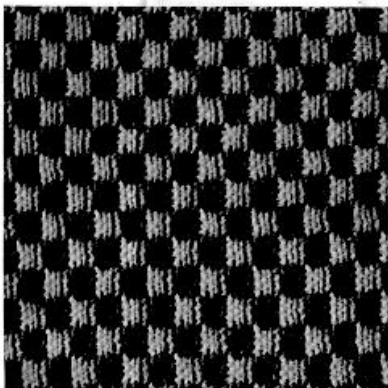
◀ front



back: BX ↔

front: BX ←

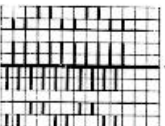
2 rows green, 2 rows white, 8 times
2 rows white, 2 rows green, 8 times
repeat



Stitch pattern II B 4

two colour Fairisle cubes, red-white handle down

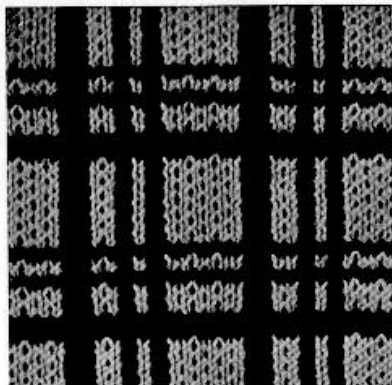
◀ back and front the same



back and front:

6 rows BX O with red
2 rows N ← with white

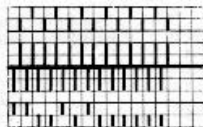
repeat



Stitch pattern II B 5

two colour Argyle pattern, black-white, handle down

◀ front



back: BX ↔

front: BX ←

2 rows white

2 rows black

2 rows white

6 rows black

2 rows white

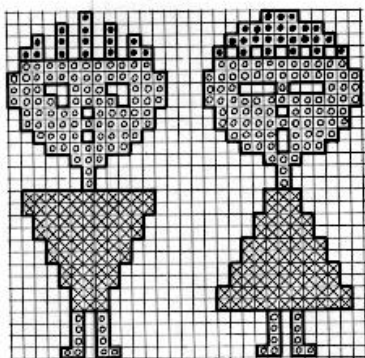
6 rows black

2 rows white, 2 rows black, 5 times

2 rows white

10 rows black

RC marks 52 — repeat



Stitch pattern II B 7

fancy Fairisle pattern, handle down, all needles and all pushers are working

◀ front

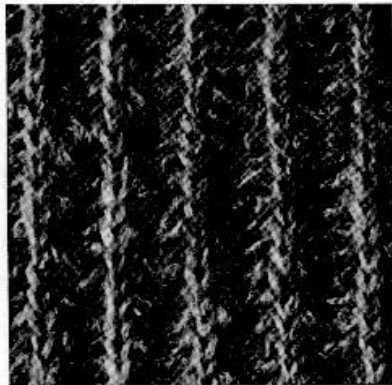


back: BX ↔

front: BX ←

Draw desired type of pattern on square-lined paper: 1 square in width each for 1 Nd, 1 square in height each for 4 rows (2 rows with trimming colour, 2 rows with basic colour). At back set every second pusher in Rest Position, at front set pushers for trimming colour in Rest Position as indicated in diagram. Knit 2 rows with trimming colour and 2 rows with basic colour. Your first square row is now finished. RC is at 4. Now for the next square row set pushers for trimming colour in Rest Position. Then knit two rows with trimming colour, two rows with basic colour and so on.

Our diagram: O = rose, X = blue, ● = yellow, empty square = basic colour black.



Stitch pattern II E 1

fully automatic, handle up, black strippers. For mohair wool let yarn slide through your hand above the feeding eyelet.

◀ front



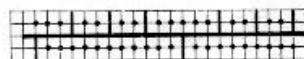
back: N

front: EX

Stitch pattern II E 2

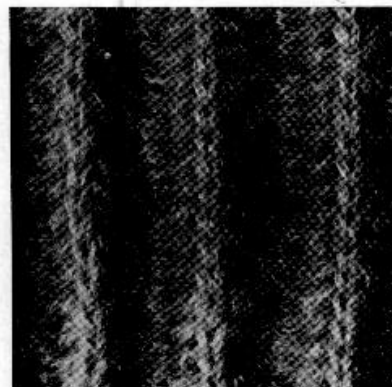
fully automatic, handle up, black strippers. For mohair wool let yarn slide through your hand above the feeding eyelet.

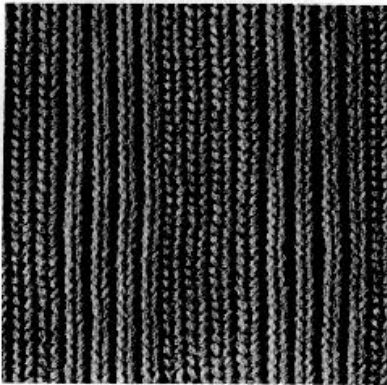
◀ front



back: N

front: EX

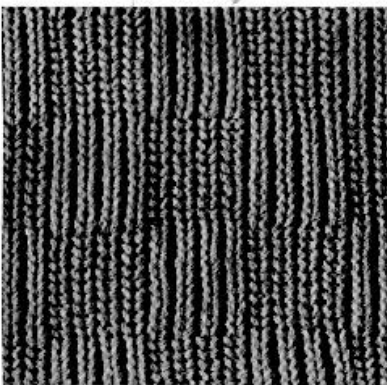
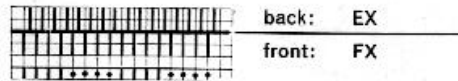




Stitch pattern II F 1

stripes of pearls fully automatic, handle down

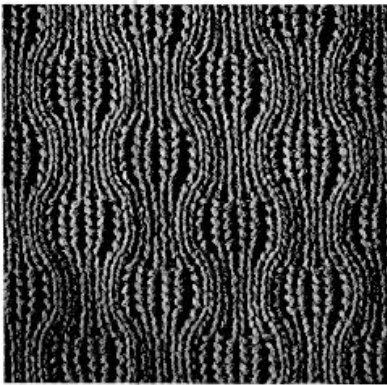
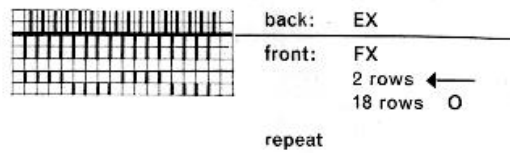
◀ front



Stitch pattern II F 2

checks of pearls handle down

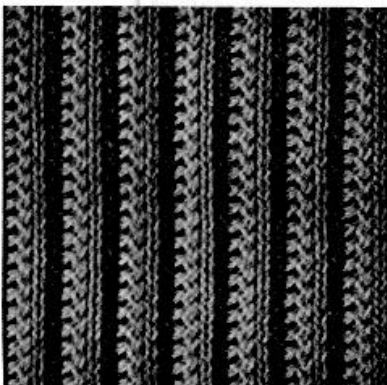
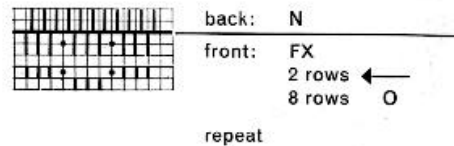
◀ front



Stitch pattern II F 3

"locket" pattern, handle down

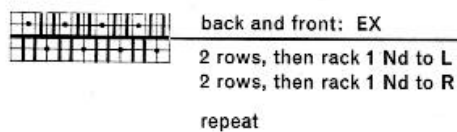
◀ back

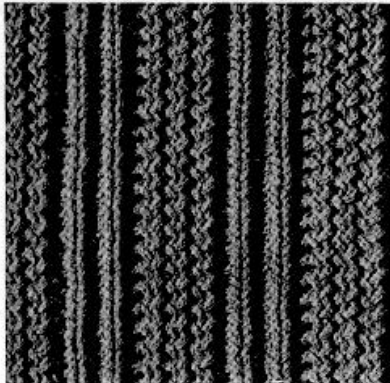


Stitch pattern II V 1

handle down, cast on with racking

◀ back

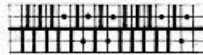




Stitch pattern II V 2

handle down

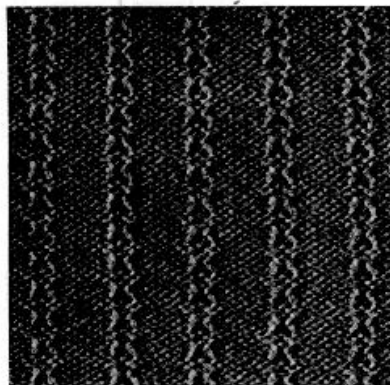
◀ back



back and front: EX

2 rows, then rack 1 Nd to R
2 rows, then rack 1 Nd to L

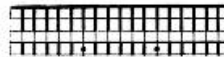
repeat



I = Stitch Patterns on ONE bed

Stitch pattern I A 3

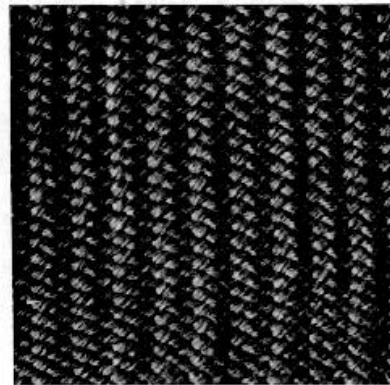
one colour striped pattern, knitted at front bed



back: GX

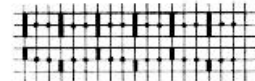
front: 2 rows AX
2 rows N

repeat



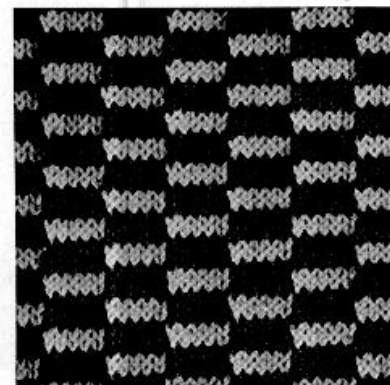
Stitch pattern I A 4

one colour woven design for thick wool, fully automatic, knitted at front bed



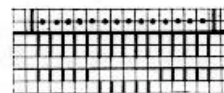
back: GX

front: AX ←→



Stitch pattern I B 1

two colour Fairisle pattern, knitted at front bed, handle down.
In order to get a smooth edge put 1 Nd at back on each side in Working Position.



back: N

front: BX ←
2 rows Col 1
2 rows Col 2
2 rows Col 1

repeat

Chapter 10 Shaping

The most beautiful knitting looks nothing, if it is not made to measure and made up properly. The PASSAP Duomatic — if correctly adjusted — will always produce perfect pieces of fabric. It is your job to shape and make up this fabric into a perfect garment. We know that many a good knitter has failed here and therefore we would like to assist you to do this job well.

Three things are essential for perfect shaping: correct measurements, a very generous test square and the correct calculation of the numbers of rows and stitches. Well, you cannot do without some calculating . . .

How to take your measurements

The simplest thing would be to put a well fitting sweater on a piece of wrapping paper and to draw its outline. Then you would only have to fill in the corresponding lines and inches. But a worn sweater is always a little out of shape and if you take it as a model, your new sweater might become too large. For a good result it is worth while making a new paper pattern, and for this we are going to give you a few hints.

Basic pattern with set-in sleeve

Back and front, Fig. 113

- A — A = back length with welt
- B — B = half waist line (approx. 1" to 2" smaller than bust width D—D)
- B — C = height of welt
- C — D = side length without welt
- D — D = half bust width beneath armhole
- E — E = back width
- F — F = $\frac{1}{4}$ of back width for neck
- F — G = shoulder width, a little on the slant
- D — G = height of armhole, same as height of sleeve head
- A — H = neck-depth, appr. 2" to 3"

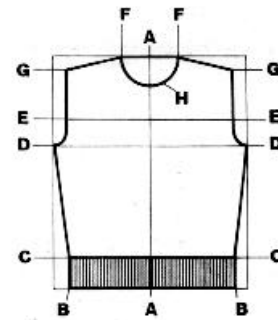


Fig. 113

Cut out wrapping paper for the largest measurements, i.e. length of A—A line and width of D—D line. Now measure each line following our given order and fill it in together with the corresponding inches.

Long sleeve, Fig. 114

- A — A = outer arm length with welt (measured with outstretched arm)
- B — B = wrist width
- B — C = height of welt
- C — D = inner arm length without welt
- D — D = upper arm width beneath armhole
- E — E = width of sleeve head about 2" to 3"
- A — X = height of sleeve head: outer arm length minus inner arm length with welt.

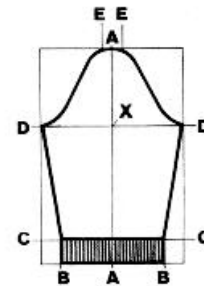


Fig. 114

Cut out the wrapping paper for the largest measurements, i.e. as long as the A—A line and as wide as the D—D line.

Now measure each line following our given order and fill it in with the corresponding inches.

Deviations from the basic pattern

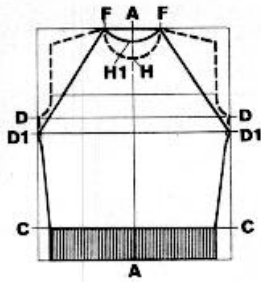


Fig. 115

Raglan pattern with short sleeve, Fig. 115

Copy basic pattern

Back and front

- D — D1 = slope 1 to 1½"
- D1 — F = Raglan line, same as sleeve length D1 — E1
- D1 — C = new side length without welt
- D1 — D1 = half bust width
- A — H1 = shorten neck depth to appr. 2" only

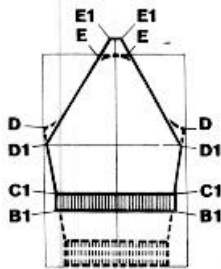


Fig. 116

Short raglan sleeve, Fig. 116

- D — D1 = slope 1 to 1½"
- D1 — D1 = upper sleeve width
- D1 — C1 = new inner sleeve length without welt
- C1 — C1 = lower sleeve width
- B1 — B1 = welt edge
- D1 — E1 = lengthen raglan line from E to E1 to obtain same length as D1 — F on back and front.
- E1 — E1 = width of sleeve top (appr. 6 stitches)

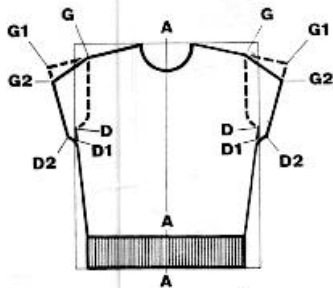


Fig. 117

Dolman pattern with short sleeves, Fig. 117

Copy basic pattern, taking a larger piece of wrapping paper

- G — G1 = extend shoulder line by the desired arm length
- D — D1 = slope 1 to 1½"
- G1 — D2 = line for lower sleeve width (vertical to line G — G1)
- D1 — D2 = connecting line
- G1 — G2 = slope 1 to 1½"
- G — G2 = extended shoulder line with welt
- G2 — D2 = half lower sleeve width

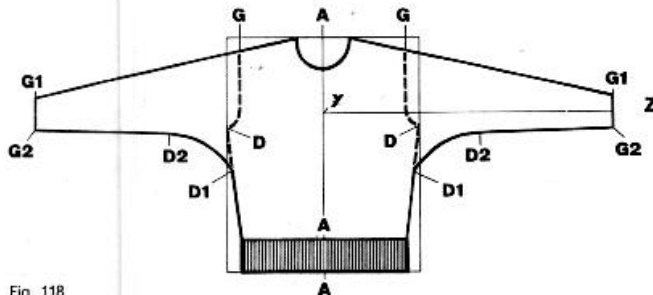


Fig. 118

Dolman pattern with long sleeves, Fig. 118

Start garment from the sleeve welt

Copy basic pattern, taking a larger piece of wrapping paper

- Y — Z = length from middle of back to lower arm welt (measured with outstretched arm)
- G — G1 = extend shoulder line by desired arm length
- D — D1 = slope 2¼ to 3½"
- D1 — D2 = curve outside by approx. 4"
- G1 — G2 = parallel to line A—A, lower sleeve width
- G2 — D2 = connect lines

All these patterns are only basic patterns, which can be altered according to taste and fashion. For a casual sweater knit the waist welt as wide as the bust measurement, for a sweater fitting round the hips knit the side seam longer, for a sweater with deep set-in sleeves lengthen shoulder line and knit sleeve shorter etc.

How to knit your test square and calculate the required numbers of rows and stitches

Before starting any garment it is **essential** that you make a generous test square. This is no waste of wool as you can unravel it later on once your garment is finished and use the yarn again for collar, seams etc.

Why you should knit a test square

1. To test your wool and stitch pattern
2. To test the texture of the knitting
3. To calculate the required number of rows and stitches

The number of rows and stitches required for a garment varies according to wool, wool tension and adjustment of the stitch size.

If you want your garment to fit really well, you should always calculate the required number of stitches and rows according to your wool and the setting of your machine.

That's what makes PASSAP knitting such a wonderful pleasure: you may knit as you like according to your own individual taste.

How to knit a test square

The larger your test square the more precise your calculation of the number of rows and stitches will be the better the fit of your garment. In order to avoid the time-wasting counting of stitches, where errors may easily occur, just knit a square of 100 stitches and 100 rows.

However, if you do not work over all needles, i.e. if certain needles remain in Rest Position (thick wool, 1 : 1 division, 3 : 1 division etc.) a square of 50 needles width and 100 rows depth will be sufficient. In this case you just multiply by 2 the number of inches corresponding to 50 stitches and proceed as explained below.

Only the needles in Working Position will be counted.

First, by testing, find the right stitch size and wool tension, then **do not** alter the adjustment of your machine.

With contrast wool cast on 100 stitches (50 on each bed), knit a few rows, set row counter to 000. Now thread the wool you are going to use for your garment and knit until row counter reads 100. *

As soon as the row counter indicates 100, thread in contrast wool, knit a few rows and remove. Stretch square according to pattern lengthwise and crosswise until it shows the required texture.

* With normal knitting 100 rows indicated by the row counter are 100 rows actually knitted. When patterning it can be less, e.g. with tubular knitting or Fisherman's Rib 100 rows indicated by the row counter are only 50 rows actually knitted, since on each bed stitches are only knitted on every alternate row. In order to avoid any doubt, we just count the number of rows indicated by the row counter.

How to calculate the required numbers of rows and stitches

Since you have knitted 100 rows and 100 stitches, you have avoided the trouble of counting rows and stitches. All you have to do now is to measure your knitted square.

100 stitches are x inches wide (for 50 stitches count double)

100 rows are y inches high

Now calculate the number of rows and stitches for 1":

$100 \div x =$ number of stitches required for 1"

$100 \div y =$ number of rows required for 1"

Once you have the number of rows (or stitches) required for 1" multiply these by the required number of inches.

Example

100 stitches equal e.g. 9"

$100 \div 9 = 11 \cdot 11$ stitches to 1".

Half the width of the required waist line could be, say, 14". You need 14 times 11 · 11 stitches = 155 · 54 stitches = 156 stitches to the nearest whole number.

100 rows equal e.g. 8"

$100 \div 8 = 12 \cdot 5$ rows to 1".

The side length could be, say, 12" high. You need 12 times 12 · 5 rows = 150 rows.

You think that these calculations are rather tiresome?

Well, then use your **PASSAP Chart**, where all the calculations are done for you

Horizontally: Measurements in inches of your test square.

Across the top you will find the measurements of your square of 100 stitches and 100 rows; range from 4" to 20" split up in two charts.

Vertically: Required measurements in inches for your garment. From top to bottom, on the left and right, you will find the number of inches measured for your garment. These numbers range from ½" to 40" on each chart.

Example

The 100 stitches of your square measure, say, 10". For your garment, however, you need a width of, say, 8". Look in the horizontal column under 10" and in the vertical column under 8". Where both columns meet you find the number 80, i.e. you have to cast on 80 stitches (40 on each bed).

In the same way you find the desired number of rows on the chart.

Numbers for measurements which you do not find on the chart you may obtain by a simple addition:

Example:

Required width, say, 7½"

Square: 100 stitches = 10"

You read on the chart:

	7" = 70 stitches
	½" = 5 stitches
Total	<u>7½" = 75 stitches</u>

Write down on your paper pattern next to the appropriate measurements in inches each number of stitches and rows you have found on your chart.

The PASSAP Chart
Table of measurements of a 100 stitches or 100 rows test square from 4" to 12"

Required length of knitting (inches)	Inches equivalent to 100 stitches or 100 rows																Required length of knitting (inches)	
	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½		12
¼	12-13	11	10	9	8-9	7-8	7	6-7	6-7	5-6	5-6	5-6	5	4-5	4-5	4-5	4	¼
1	25	22	20	18	17	15	14	13	12	11	11	10	10	10	9	9	8	1
2	50	44	40	36	33	31	28	27	25	24	22	21	20	19	18	17	16	2
3	75	67	60	55	50	46	43	40	38	35	33	31	30	29	27	26	25	3
4	100	89	80	73	67	62	57	53	50	47	44	42	40	38	36	35	33	4
5	125	111	100	91	83	77	71	66	63	59	55	53	50	48	45	43	41	5
6	150	133	120	109	100	92	86	80	75	71	66	63	60	57	55	52	50	6
7	175	156	140	127	117	108	100	93	86	82	78	74	70	67	64	61	58	7
8	200	178	160	145	132	123	114	107	100	94	89	84	80	76	73	70	67	8
9	225	200	180	164	150	138	128	120	113	106	100	95	90	86	82	78	75	9
10	250	222	200	181	167	153	142	133	125	118	111	105	100	95	91	87	83	10
20				333	307	285	266	250	235	222	210	200	190	182	173	166	160	20
30										353	333	315	300	285	273	261	250	30
40																		40

The PASSAP Chart
Table of measurements of a 100 stitches or 100 rows test square from 12 1/2" to 20"

Required length of knitting (inches)	Inches equivalent to 100 stitches or 100 rows																Required length of knitting (inches)
	12 1/2	13	13 1/2	14	14 1/2	15	15 1/2	16	16 1/2	17	17 1/2	18	18 1/2	19	19 1/2	20	
1/2	4	3-4	3-4	3-4	3-4	3	3	3	3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	1/2
1	8	8	7	7	7	6-7	6-7	6	6	6	6	6	5	5	5	5	1
2	16	15	14	13	13	12	12	12	12	12	11	11	10	10	10	10	2
3	24	23	22	21	20	19	18	18	18	17	17	17	16	16	15	15	3
4	32	31	30	28	27	26	26	25	24	24	23	22	22	21	20	20	4
5	40	38	37	35	34	33	32	31	30	29	28	28	27	26	25	25	5
6	48	46	44	43	41	40	39	37	36	35	34	33	32	31	30	30	6
7	56	54	52	50	48	47	45	44	42	41	40	39	37	37	35	35	7
8	64	62	59	57	55	53	52	50	48	47	46	44	43	42	41	40	8
9	72	70	66	64	62	60	58	56	54	53	51	50	49	47	46	45	9
10	80	77	74	71	69	67	64	62	60	59	57	56	54	53	51	50	10
20	160	154	148	142	138	133	129	125	121	118	114	111	108	105	102	100	20
30	240	231	222	214	206	200	193	186	181	176	171	167	162	158	154	150	30
40	320	308	296	286	276	266	258	250	242	235	229	222	216	210	205	200	40

In order to see where to increase or to decrease, you look at the figures which you have written down on your paper pattern.

Example: You need, say, 140 stitches for the waist welt
You need, say, 160 stitches for the bust width,
i.e. 20 stitches more

The side seam has a height of, say, 150 rows.

Over 150 rows you have to increase a total of 20 stitches, i.e. on both sides 1 stitch 10 times. These increasings should be evenly distributed over the 150 rows.

Divide 150 (rows) by 10 (increasings) and you get the number 15.
 $150 \div 10 = 15$.

Therefore at intervals of 15 rows each, 10 increasings have to be made on both sides. In order to knit a few rows straight before beginning and ending the increases make the first increase both ends of the 5th row, the last both ends of the 140th row. Note this on your paper pattern along the side line: increase on both sides 1 stitch on the fifth and every following 15th row 10 times.

Increase both ends of the	5th row
	20th row
	35th row
	50th row
	65th row
	80th row
	95th row
	110th row
	125th row
	140th row

In the same way calculate for decreasing.

Having filled in all numbers for rows and stitches on your paper pattern, you are ready for care-free knitting: your garment will be well fitting and much admired.

Chapter 11

How to finish your garment

Fig. 119

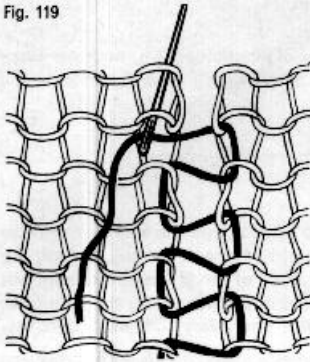


Fig. 120

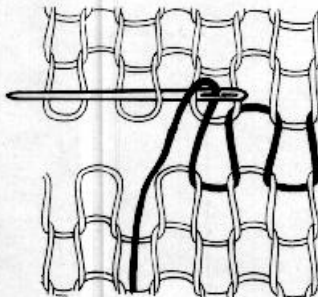
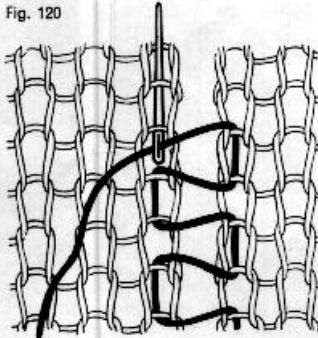


Fig. 121

Some hints for blocking and pressing

Before beginning to make up, block and press (see 3, below) each piece separately on the wrong side, using a hot iron over a damp cloth. Each piece should be **pinned out to size** on a folded blanket covered with a clean white cloth putting a stainless pin into each border stitch.

Then cover with a damp cloth and press **lightly**.

"Pressing" does not mean that you should press heavily with the iron, just let it "hover" over the damp cloth.

1. **All knits, even stocking stitch** must only be pressed very lightly with a hot iron.
2. **Two pieces of the same shape** can be blocked and pressed together before being made up. Put right side to right side, pin out to size, cover with damp cloth and press.
3. **Fisherman's Rib, raised patterns — welts and so on** must **never** be pressed. Pin out to size, cover with a damp cloth and leave it until cloth and wool are dry.

How to wash your woolies

If you follow the golden rules given below, your PASSAP knitted garments will always look as fresh and lovely — just like new:

1. Use mild soap flakes or liquids only, **never** detergents.
2. Use lukewarm water only, approx. 75° Fahrenheit.
3. Never rub, always squeeze.
4. Rinse thoroughly, first in lukewarm water, then in cold water, add dash of vinegar to the last clear water, which will brighten up the colours.
5. Squeeze immediately and well, between two Turkish towels until the wool is almost dry.
6. For drying spread out in shape on a light, clean towel and cover with a thin cloth. Avoid sun or central heating.
7. Only when dry, press as described above.

Neat seams

What is the use of perfect knitting when it is not properly made up? Below we give you three examples of a nice even seam.

The flat seam, Fig. 119

With a darning needle sew on the wrong side.

The Mattress Stitch, Fig. 120

Very suitable for inconspicuous side seams. Sew on the right side.

The Graft Stitch

Form the missing row of knit stitches on the right side.

Chapter 12 Technical Hints

How to change a latch needle

Damaged latch needles can easily be replaced. Below each upper rail there is a needle rail which holds the needles in place.

First, on one side of the bed, push needle rail slightly inwards until it comes out on the other side.

Then pull out the needle rail as far as necessary, Fig. 122.

How to remove a damaged latch needle

At first with flat pliers break off needle head completely, Fig. 122 a/1.

Then with pliers hold needle foot and pull out downwards, Fig. 122 a/2.

How to remove a latch needle that is not damaged

At first close needle head (close latch). Then pull needle out downwards, Fig. 123/3, otherwise the needle retaining spring will be damaged.

To insert a needle

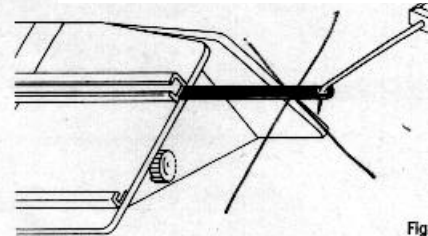
At first open latch. Then hold needle foot and insert from below, Fig. 123/4.

Push back needle rail

Lock jams

Remove strippers and feeding eyelet. Set lock to $\frac{GX}{GX}$ and free move off knitting carefully. With decker needle replace stitches into advanced needle heads. Unravel faulty rows, if necessary correct pusher division. Reset RC, deducting the number of unravelled rows.

Before continuing to knit, replace strippers and feeding eyelet and reset lock. Check whether yarn runs freely through the eyelet of the tension arm or has become entangled.



Fig

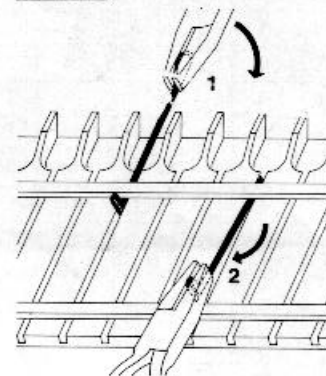


Fig. 122a

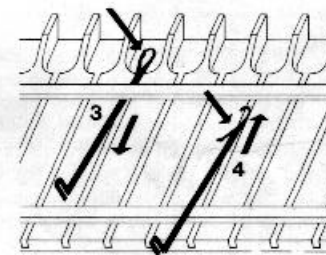


Fig. 123

Heavy moving of the lock

Reason

wool tension too tight

dirty needle bed

dirty cams

wrong strippers

Correction

turn regulator G towards "—" and move lever H towards "+" (see page 21, Fig. 53)

clean well and oil lightly

clean well and oil lightly

red for fine wools up to 3 ply
blue for heavy and thick wools from 4 ply upwards.

black for stocking stitch and tubular knitting, or when you knit with more than two adjacent needles in Neutral Position on one bed.

Cleaning and oiling see chapter 2.

Faults in pattern changing — change pusher

Basic rule: When you knit always move lock completely across the knitting so that each latch needle and each pusher may return to its correct position.

With the automatic pattern device faults can only occur if a pusher slides out of its correct position and changes out of turn.

To withdraw a pusher: Outside pusher rail, hold pusher foot and remove pusher.

To bend a pusher: Bend the shaft until it is slightly curved. The bending will cause a better braking of the pusher.

To insert a pusher: Hold foot and insert pusher into channel.

Faulty edge stitches

Reason

Correction

edge spring is not set correctly

reset edge spring, see page 13, Fig. 36

lock has been moved too far beyond the knitting

pull yarn tightly behind mast, see page 21, Fig. 54

wool tension too loose

turn regulator G towards "+" and move lever H towards "-" (see page 21, Fig. 53)

stripper is bent

bar of left stripper has to slide along back bed, bar of right stripper has to slide along front bed

Stitches are not knitted off

Reason

Correction

stitch size too small

reset to higher number, see page 14, Fig. 38

faulty latch needle

change needle, see page 57, Fig. 122 and 123

Dropped stitches

This can happen if the stitch size is set too large. However, since the PASSAP Duomatic knits without weights, the damage is not great, for the stitch does not run down and on the next row a new stitch will be formed. If you notice it at once, replace the stitch into its needle head. If you notice it is later, leave the stitch alone, and when your knitting is finished, catch it with a small stitch on the wrong side of work.

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DUOMATIC (PINK) ADDITIONAL INFORMATION.

Tubular fairisle with special lock on PASSAP-DUOMATIC

Contrarily to knitting fairisle with the normal DUOMATIC lock, where each colour knits twice for one square row, with the special fairisle lock, each colour knits only once for one square row, on each bed.

Important

Your PASSAP-DUOMATIC is furnished with a special lock to do tubular fairisle knitting in one row. To achieve this, the regulation of the dial selector has been altered in comparison to the normal DUOMATIC lock. Hereafter we explain the new setting of the dial selector with regard to positions EX and FX.

EX without pushers for fisherman's rib,
same as with normal lock

The needles work as follows:

- 1 row loops for fisherman's rib
- 1 row normal
- When moving the lock from right to left, the loops are placed in the needle heads on back bed. The needles on the front bed knit normally
- When moving the lock from left to right, the loops are placed in the needle heads on front bed. The needles on the back bed knit normally.
- Back EX, front N = Pearls appear on the front of knitting
- Back N, front EX = Pearls appear on the back of knitting
- Back EX, front EX = Full fisherman's rib on both sides of knitting

EX with pushers = Patterned fisherman's rib,
corresponds to FX - position with normal lock

Double bed knitting: Arrange pushers as required. Where pushers are in Working-Position, the corresponding needles will knit normally. Where pushers are in Rest-Position the corresponding needles will form loops.

Single bed knitting: When changing of pattern is required, pushers have to be in 1:1 division. Without changing of pattern, arrange pushers as desired, however, never put more than one single pusher completely out of work (within the pusher rail) i. e. never adjacent pushers.

FX = one row tubular
fairisle
new method

With pushers only! Work as for single bed fairisle with threads that are not woven in on the back of the knitting (same as with normal DUOMATIC lock, when set at BX) pressing left arrow key at front and right arrow key at back.

1 square = 1 stitch, i.e. in width 1 square equals 1 stitch.

1 square = 1 row, i.e. in height 1 square equals 1 knitted row.

This row is knitted as follows:

Move the lock twice for the trimming colour (1 row at front and 1 row at back) = RC 2.

Move the lock twice for the basic colour (1 row at front and 1 row at back) = RC 4.